

**Notes on the species belonging to the subfamily
ICHNEUMONIDES, found in America north of Mexico.**

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In the first volume of these Transactions (p. 289), I began the publication of a list of the Ichneumonidæ of North America, intending to continue it from time to time until completed; but after the printing of the second part (vol. ii, p. 89), the acquisition of new and more abundant material made it necessary that the work should be gone over again, and suggested many important changes, which render the lists given in the two parts of but little value. I have not since attempted a revision of the subject, preferring to wait for larger collections, and further knowledge of the economy and habits of the species. The great dissimilarity in color between the sexes in many cases—as shown in the European species—renders it extremely difficult and unsafe to correlate them; this, however, can only be determined upon by actual observation and by breeding, and will require years of patient labor, chiefly in the field.

In the present paper, which is intended merely to assist the student in separating the species, I have included only those known to me as having been found north of Mexico, which are of themselves very numerous, preferring to make at some future time a separate list of the subtropical species, which exhibit a still greater variation in form. A list of the Mexican species has already been given in the Proceedings of the Academy of Natural Sciences, 1873, p. 104, etc.

In lieu of a more satisfactory division of the subfamily, I have for the present adopted that given by Holmgren in his *Ichneumonologia Suecica*, which is as follows:—

Metathoracic spiracles linear or oval.

Petiole of abdomen not depressed, not broader than high.

Abdomen ♀ acute at tip, last ventral segment retracted; ♂ ventral segments 2—4 with longitudinal fold..... *Ichneumonides oxygygi*.

Abdomen ♀ obtuse at tip, last ventral segment slightly or not at all retracted; ♂ ventral segments 3—8 or 4—8 flat, smooth, without longitudinal fold..... *Ichneumonides amblypygi*.

Petiole of abdomen depressed, broader than high.... *Ichneumonides platyuri*.

Metathoracic spiracles circular..... *Ichneumonides pneustici*.

Ichneumonides oxypygi.

Scutellum more or less flat, or convex and then gradually sloping to apex; metathorax rarely bispinose.....**ICHNEUMON.**

Scutellum strongly elevated or gibbous, abruptly declivous behind; metathorax always bispinose..... **HOPLISMENUS.**

ICHNEUMON, Linn.

Under this subgenus, there are at present over two hundred species to record, many of which, on future study and observation, will doubtless prove to be varieties or sexes of other species already described. In the somewhat difficult task of tabulating such a large number of species it has been found more convenient, and in fact necessary, to separate the sexes; and color, although quite variable at times, has been found more constant and satisfactory for the principal divisions than form or sculpture.

In the females of many species there will be observed on the *posterior* coxæ beneath, (generally situate near the tip and seen more readily from a lateral view), a scopa or patch of short, more or less dense, brush-like pubescence; this, while constant in some species, is variable in others, being sometimes distinct or entirely wanting in specimens of the same species. The sculpture of the thorax has little or no significance, while that of the first and second abdominal segments is of some specific value. The sculpture of the postpetiole, or apex of first segment, which is either rugose, aciculated, punctured or smooth, and the shape and depth of the gastrocœli, or basal foveæ or depression on each side of second segment, when present, are generally of considerable importance in separating the species. These characters when found to be constant, have been used to advantage in making up the following tables.

FEMALES.

- Abdomen black or blue, without pale bands or spots except sometimes on apex of first or last segments.....SECTION I.
- Abdomen black, marked with white or yellow spots or bands, and sometimes varied with ferruginous.....SECTION II.
- Abdomen ferruginous, apex black.....SECTION III.
- Abdomen ferruginous or fulvous; the first and base or apex of two or three following segments sometimes more or less black.....SECTION IV.

Section I.—*Abdomen black or blue, without pale bands or spots except sometimes on apex of first or last segments.*

Posterior legs black, their tibiæ immaculate.

Coxal scopa distinct.

Apex of abdomen immaculate.

Wings fuliginous.

Postpetiole scabrous.

Coxal scopa rather large, flat.....3. **maurus.**

Coxal scopa small, tuberculiform.....7. **cineticornis.**

Postpetiole finely aciculated; coxal scopa small.....4. **germanus.**

Postpetiole punctured; coxal scopa large, flat.....5. **viola.**

Wings hyaline.

Scutellum white; abdomen black tinged with blue.....29. **agnitus.**

Scutellum white only at sides; abdomen steel-blue.....23. **cæruleus.**

Apex of abdomen with one or more white spots.

Posterior trochanters black.

Wings fuliginous.....26. **seolestus.**

Wings hyaline.....18. **sævus.**

Posterior trochanters white.....41. **extrematatis.**

Coxal scopa wanting.

Apex of abdomen immaculate.

Wings fuliginous.

Scutellum black.

Head large subquadrate; posterior angles of metathorax rounded.

Pale orbital lines distinct in front above the antennæ; gastrocoeli large1. **Orpheus.**

Pale orbital lines wanting; gastrocoeli small.....2. **saucius.**

Head of usual size; posterior angles of metathorax spiniform.

Abdomen deep black; gastrocoeli small, shallow.....6. **malacus.**

Abdomen tinged with blue; gastrocoeli small, deep.....13. **solitus.**

Scutellum more or less white.

Head large, buccate.....1. **Orpheus.** var.

Head of usual size, not buccate.....27. **caliginosus.**

Wings hyaline.

Scutellum black.

Abdomen steel-blue.....22. **chalybeus.**

Abdomen black, sometimes faintly tinged with blue.

Postpetiole aciculated.....19. **ater.**

Postpetiole punctured.....20. **apertus.**

Scutellum more or less white.

Postpetiole broadly dilated.

Gastrocoeli small, moderately deep; anterior orbits indistinctly pale.....34. **subcyanus.**

Gastrocoeli very large and deep; pale orbital lines entire and distinct.....36. **vitalis.**

Postpetiole narrower, gradually dilated.

Head large, buccate; postpetiole punctured.....20. **apertus.** var.

Head of usual size; postpetiole finely aciculated.....37. **mendax.**

Apex of abdomen with one or more pale spots; scutellum white.

Three apical segments each with a pale spot; pale orbital lines distinct in front above the antennæ.....39. **truculentus.**

- Two apical segments each with a pale spot; no pale orbital lines.
 Postpetiole broadly dilated; thorax, except scutellum, entirely black; wings smoky.....38. **bimembris**.
 Postpetiole narrow; collar above, line in front and beneath tegulae white; wings clear.....40. **brevicinctor**.
 Posterior legs black or blue, their tibiae marked with white or yellow.
 Mesothorax brown-ferruginous.....11. **centrator**.
 Mesothorax black.
 Coxal scopa distinct.
 Apex of abdomen immaculate.
 Scutellum entirely black.....16. **corvinus**.
 Scutellum black, white only at sides.....25. **navus**.
 Scutellum white.
 Coxal scopa very large, covering nearly their entire under surface; posterior tibiae with white line behind near base.....46. **sagus**.
 Coxal scopa narrow, linear; posterior tibiae with an entire white annulus near base.....47. **promptus**.
 Apex of abdomen with a white spot.....43. **stygius**.
 Coxal scopa wanting.
 Apex of abdomen immaculate.
 Scutellum black.
 Femora incrassate; pale orbital lines distinct in front above the antennae45. **pravus**.
 Femora slender; pale orbital lines wanting.....44. **pilosulus**.
 Scutellum pale.
 Metathorax with round white spot on each flank.....57. **otiosus**.
 Metathorax immaculate.....56. **unifasciatorius**.
 Apex of abdomen with one or more pale spots.....42. **atrox**.
 Posterior legs black; coxae, femora and tibiae marked and banded with white; abdomen steel-blue24. **pulcher**.
 Posterior legs black; base of tibiae and the tarsi ferruginous; apex of abdomen with two pale spots.....62. **gestuosus**.
 Posterior legs black, their femora ferruginous.....65. **semilevis**.
 Posterior legs ferruginous.
 Apex of abdomen immaculate.....67. **pedalis**.
 Apex of abdomen more or less white69. **helvipes**.

Section II.—*Abdomen black, marked with white or yellow spots or bands, and sometimes varied with ferruginous.*

- Second segment only with two white spots.....70. **bioculatus**.
 Second segment only with white or yellowish band.
 Coxal scopa distinct.....71. **uncinatus**.
 Coxal scopa wanting.....72. **feralis**.
 Second and third segments each with a yellowish band.
 Coxal scopa distinct; two white spots at tip of abdomen....76. **calitergus**.
 Coxal scopa wanting.
 Apex of abdomen immaculate.....73. **bizonatus**.
 Apex of abdomen with white spots.....72. **feralis**, var.
 Second, and often third segments with a yellowish band at tip, apical segments ferruginous, also mesothorax and generally the metathorax: femora black.....101. **subdolos**.

- Second segment fulvous, a whitish band at tip of segments three, four and six;
 legs fulvous or ferruginous.....102. **juvencus**.
 All the segments with a yellow band at tip.
 Coxal scopa distinct; face yellow.....90. **zebratus**.
 Coxal scopa wanting; face black.....97. **atrifrons**.

Section III.—*Abdomen ferruginous, apex black.*

- Coxal scopa distinct113. **volesus**.
 Coxal scopa wanting.
 Scutellum entirely black.....114. **involutus**.
 Scutellum whitish or ferruginous.
 Antennæ slender, basal joints of flagellum elongate cylindrical.
 Thorax entirely black.....160. **instabilis**.
 Thorax black: mesothorax and large mark on pleura ferruginous; apex
 of abdomen with pale spots.....119. **terminalis**.
 Thorax entirely ferruginous.
 Third joint of antennæ double the length of fourth.
 Apex of abdomen without pale spot; tip of segments two to four
 black.....132. **indemnis**.
 Apex of abdomen with pale spot; segments one to three entirely
 ferruginous.....133. **caudatus**.
 Third joint of antennæ scarcely longer than fourth; apex of abdomen
 with pale spot.....134. **putus**.
 Antennæ with short, thick-set subquadrate joints.
 Abdomen with segments one to three ferruginous, base of third with
 black band.....127. **vecors**.
 Abdomen with segments one to three or four entirely ferruginous.
 Four anterior femora unusually swollen.
 Apex of abdomen without pale spot.....128. **nigrovariegatus**.
 Apex of abdomen with pale spot.....129. **humilis**.
 Four anterior femora not unusually swollen.
 Size medium; legs, except coxæ and trochanters, entirely fer-
 ruginous.....131. **seditiosus**.
 Size small; posterior femora and tibiæ marked with black.
 Apex of abdomen black, immaculate.....121. **hospitus**.
 Apex of abdomen with pale spot.....130. **tumidifrons**.

Section IV.—*Abdomen ferruginous or fulvous; the first and base or apex of two or three following segments sometimes more or less black.*

- Wings fuliginous.
 Coxal scopa distinct.
 Thorax black.....135. **grandis**.
 Thorax ferruginous; sutures of abdominal segments strongly constricted;
 head unusually large.....149. **trogiformis**.
 Coxal scopa wanting.
 Thorax black.
 Posterior legs entirely black.
 Antennæ short, involute136. **inurbanus**.
 Antennæ long, slender.....137. **rufiventris**.
 Posterior legs black, their tibiæ white at base.....139. **devinctor**.
 Posterior legs black, their tibiæ dull-ferruginous.....140. **lividulus**.

- Posterior legs black, their femora ferruginous.....141. **insolens**.
 Posterior legs ferruginous.....137. **rufiventris**, var.
 Thorax more or less ferruginous.
 Posterior legs entirely black; head black.....143. **dorsalis**.
 Posterior legs, except coxæ, entirely ferruginous; head ferruginous; second abdominal segment sometimes black at base...144. **Lewisii**.
 Thorax, legs and entire body ferruginous.
 Antennæ black, base sometimes ferruginous.....145. **purpuripennis**.
 Antennæ ferruginous, apical third black, middle joints tinged with yellowish.....147. **compar**.
- Wings hyaline or subhyaline.
 Thorax entirely black.
 Scutellum black.....156. **virginicus**.
 Scutellum white or yellow.
 Abdomen with base of segments more or less black..159. **canadensis**.
 Abdomen except base of first segment entirely ferruginous.
 Apex of abdomen without pale spot; antennæ with short, thick-set joints.168. **fuscus**.
 Apex of abdomen with pale spot.
 Antennal joint 3 longer than 1 and 2 together.....161. **fuscifrons**.
 Antennal joint 3 not longer than 1 and 2 together.
 Posterior tibiæ whitish on basal half.....164. **ultimus**.
 Posterior tibiæ ferruginous, black at tips.....165. **vivax**.
- Thorax black, metathorax more or less marked with white...170. **w-album**.
 Thorax black, meso- and sometimes metathorax more or less ferruginous.
 Posterior tibiæ ferruginous, black at tips.
 Apex of abdomen without pale spot.....160. **instabilis**.
 Apex of abdomen with pale spot.
 Posterior coxæ black; gastrocæli deep, foveiform.....169. **maius**.
 Posterior coxæ ferruginous; gastrocæli very transverse.....163. **velox**.
- Posterior tibiæ with pale annulus.
 Length of body .40 inch.....173. **signatipes**.
 Length of body .25—.30 inch.....174. **annulipes**.
 Posterior legs, except sometimes the coxæ, entirely ferruginous.
 Antennæ with pale annulus.
 Scutellum yellow; abdomen with segments one to four more or less black at base; antennæ and legs robust.....177. **seminiger**.
 Scutellum ferruginous; abdomen entirely ferruginous; antennæ and legs slender.....178. **flexibilis**.
 Antennæ pale ferruginous, black at tips, subrobust; abdomen entirely ferruginous.....180. **hiemalis**.
 Antennæ, except first joint, entirely black, slender; spot on pleura and abdomen entirely, ferruginous.....179. **sequax**.
- Thorax ferruginous, mesothorax only black.....162. **confirmatus**.
 Thorax entirely ferruginous, or with black sutures or stains.
 Abdomen with one or more segments banded or margined with black.
 Antennæ long, slender, basal joints of flagellum elongate, cylindrical.
 Third joint double the length of fourth; segments three to five of abdomen narrowly margined at apex with black...181. **subfulvus**.
 Third joint slightly longer than fourth; broad band at base of segment three of abdomen, and spot on disc of two, black...182. **cestus**.

- Antennæ short, with thick-set joints.
 Posterior femora and tibiæ black at tips; antennæ with white annulus;
 scutellum yellowish.....183. **vicinus**.
 Posterior legs entirely ferruginous; antennæ without pale annulus;
 scutellum ferruginous184. **brevipennis**.
 Abdomen with large black mark on disc of segments two and three, apical
 segment with pale spot.....188. **disparilis**.
 Abdomen entirely ferruginous.
 Metathorax with two prominent, flattened tubercles.....201. **rutilus**.
 Metathorax without prominent tubercles.
 Postpetiole densely and finely scabrous; antennæ robust, with short,
 thick-set joints.....189. **russatus**.
 Postpetiole distinctly aciculate.....160. **instabilis**, var.
 Postpetiole either smooth, or indistinctly aciculated.
 Antennæ entirely ferruginous.
 Size medium; antennal joints elongate.....190. **semissus**.
 Size small; antennal joints short.....200. **petuleus**.
 Antennæ with pale annulus.
 Second segment of abdomen impunctured.....193. **proximus**.
 Second segment closely and finely punctured; posterior tibiæ pale at
 base, fuscous at tip; thorax varied with dusky...194. **nanus**.
 Second segment of abdomen coarsely punctured; body and legs
 entirely ferruginous.....195. **rubicundus**.
 Postpetiole distinctly punctured.
 Clypeus very short and broad, its anterior margin broadly arenated,
 exposing most of the mentum.....196. **residuus**.
 Clypeus of usual proportions, its anterior margin truncate, covering
 the mentum.....198. **soror**.

MALES.

In the following table, which will serve to distinguish the males, those of the species belonging to *Amblyteles* (of the division *amblypygi*) are included, it being difficult and often impossible to separate them from the males of *Ichneumon*, the ventral fold sometimes varying considerably in length in specimens of the same species.

- Abdomen black or blue, without pale bands or spots, except sometimes on apex
 of first or last segments.....SECTION I.
 Abdomen black spotted or banded with white beyond first segment and before
 apex.....SECTION II.
 Abdomen black and yellow, sometimes varied with ferruginous.....SECTION III.
 Abdomen fulvo-ferruginous, apical margins of segments 1—4, and terminal
 segment pale yellow.....SECTION IV.
 Abdomen bright saffron-yellow, the three or four apical segments black; legs
 entirely yellow.....SECTION V.
 Abdomen more or less ferruginous or fulvous, apex always black.....SECTION VI.
 Abdomen ferruginous or fulvous, the first and base or apex of two or three
 following segments more or less black, apex never black.....SECTION VII.

Section I.—*Abdomen black or blue, without pale bands or spots, except sometimes on apex of first or last segments.*

Posterior legs entirely black.

Antennæ orange-yellow, black at extreme base and apex...12. **flavicornis.**

Antennæ black, with pale annulus.

Apex of abdomen immaculate.

Wings dark fuliginous.

Postpetiole entirely black.

Face entirely black; annulus on antennæ broad.....8. **galenus.**

Face black; white laterally; annulus on antennæ narrow.

Scutellum black.

Antennæ short, pale annulus entire.....9. **torvinus.**

Antennæ long, pale annulus interrupted beneath...10. **citinus.**

Scutellum white; sides of face broadly white.....28. **histricus.**

Postpetiole more or less white at tip; face white, sometimes black in lateral depressions.....56. **unifasciatorius.**

Wings hyaline or subhyaline.

Small; face entirely black or with pale orbital lines.....21. **acerbus.**

Larger; face entirely white or spotted with white...14. **scriptifrons.**

Apex of abdomen with one or more pale spots.

Postpetiole entirely black.

Posterior trochanters black.....40. **brevicinctor.**

Posterior trochanters white.....41. **extrematatis.**

Postpetiole narrowly margined at apex with white.

Metathorax immaculate.....32. **citatus.**

Metathorax with round white spot on each flank.....33. **merus.**

Antennæ entirely black or blue.

Scutellum entirely black or blue.

Body deep black, rather shining; wings hyaline.....17. **odiosus.**

Body blue-black, opaque; wings dusky.....**Ambly. montanus.**

Scutellum white.

Face white with black central stripe.

All the coxæ black.....35. **neutralis.**

Four anterior coxæ white.....30. **pepticus.**

Face entirely white.....31. **pervagus.**

Posterior legs black, their tibiæ more or less white.

Antennæ black, with pale annulus.

Apex of abdomen immaculate.

Postpetiole entirely black.

Posterior tibiæ white, black at tips; four anterior coxæ and trochanters white.....48. **vagans.**

Posterior tibiæ with an entire white annulus at base.

Posterior trochanters white, tibiæ white at base; scutellum white laterally.....25. **navus.**

Posterior trochanters black, tibiæ black at extreme base; scutellum entirely white.....47. **promptus.**

Posterior tibiæ with white line above towards base.

Metathorax immaculate; annulus on antennæ entire.....46. **sagus.**

Metathorax with two white spots behind; annulus on antennæ interrupted beneath.....53. **sublatus, var.**

- Postpetiole with white spot or band at tip.
 Metathorax immaculate.....56. **unifasciatorius**.
 Metathorax with two white spots behind.....53. **sublatus**, var.
 Apex of abdomen marked with white.**Ambly. improvisus**.
 Antennæ entirely black.
 Postpetiole entirely black.
 Scutellum entirely black.....15. **macilentus**.
 Scutellum pale.
 Apex of abdomen black.
 Metathorax immaculate.
 Posterior tibiæ white or yellow, black at tips.
 Wings fuscous.....58. **bronteus**.
 Wings subhyaline.
 Posterior tarsi whitish; all the coxæ black.....59. **audax**.
 Posterior tarsi white, annulate with black; four anterior coxæ
 white.....60. **cinclitarsis**.
 Posterior tarsi entirely black, all the coxæ white...**Ambly. ultus**.
 Posterior tibiæ black, with white line above.
 Face entirely black.....**Ambly. expunctus**.
 Face white laterally, centrally black.
 Postpetiole coarsely aciculated.
 Abdomen black, second segment uniformly sculptured; pos-
 terior coxæ marked with white.....**Ambly. ultus**, var.
 Abdomen blue-black, second segment coarsely and longitudi-
 nally rugose on basal middle; posterior coxæ entirely
 black.....**Ambly. stadaconensis**.
 Postpetiole smooth or punctured.
 Sides of face narrowly white.....51. **cordatus**.
 Sides of face broadly white.
 White line on posterior tibiæ entire.
 Wings smoky, sometimes clear at base...49. **vittifrons**.
 Wings hyaline, narrowly dusky at tips.....50. **recessus**.
 White line on posterior tibiæ not reaching the tip; wings
 hyaline.....34. **subcyanus**.
 Face entirely white; wings hyaline.....52. **jejunus**.
 Metathorax with two white spots behind.....53. **sublatus**.
 Apex of abdomen fulvous, venter and narrow lateral margins of dorsal
 segments yellowish.....63. **ventralis**.
 Postpetiole with white spot or band at tip.
 Scutellum white only on lateral margins; abdomen blue...23. **cæruleus**.
 Scutellum white; abdomen black.
 Metathorax immaeulate.....54. **Azotus**.
 Metathorax with lateral white spot.....55. **infidelis**.
 Posterior legs black, their coxæ, femora and tibiæ marked with white.
 Scutellum white only on lateral margins; abdomen blue; metathorax marked
 with white.....24. **pulcher**.
 Scutellum white; abdomen black; metathorax immaeulate...61. **ornatipes**.
 Posterior legs ferruginous.
 Posterior coxæ ferruginous, tips of their femora, tibiæ and tarsi entirely
 black; form slender.
 Face pale.....68. **puerilis**.
 Face black.....**Ambly. illætabilis**.

Posterior coxæ black.

Apical segments of abdomen black, immaculate.

Scutellum black.

Face yellow; abdomen robust, opaque..... 66. **similaris**.

Face black; abdomen rather slender and smooth beyond second segment; wings fuscous.....67. **pedalis**.

Scutellum yellow..... **Ambly. luctus**.

Apical segment of abdomen fulvous; face yellow.....64. **apicalis**.

Apical segment of abdomen white; face black with sides narrowly pale; scutellum white posteriorly.....69. **helvipes**.

Section II.—*Abdomen black spotted or banded with white beyond first segment and before apex.*

Second segment only with two white spots.....70. **bioculatus**.

Second and third segments each with a spot on each side, and narrow apical margins of third and following segments, white.....77. **consignatus**.

All the segments narrowly margined at apex with white.

Metathorax and pleura black, with pale markings; posterior femora black; antennæ without pale annulus78. **albomarginatus**.

Metathorax and pleura ferruginous, with pale markings; posterior femora ferruginous; antennæ with pale annulus..... 79. **Blandii**.

Section III.—*Abdomen black and yellow, sometimes varied with ferruginous.*

Apex of abdomen black, with a white spot on last segment.....74. **texanus**.

Apex of abdomen black, immaculate.

Antennæ with pale annulus.....75. **suadus**.

Antennæ without pale annulus.

Third segment with indistinct yellowish band at base; wings fuliginous; metathorax entirely black..... 58. **Bronteus**, var.

Third segment with broad yellow band shading into fulvous at apex; wings hyaline; metathorax white at tip.80. **Dakota**.

Second and third segments entirely yellow.....81. **pictifrons**.

Second and third segments yellow tinged with fulvous, third segment with large blackish mark at base..... 82. **bipunctatus**.

Second and third segments yellow, varied at base and apex, and sometimes centrally, with ferruginous or fuscous.....84. **versabilis**.

Second and third segments yellow, more or less black *at apex*.

Abdomen shining, postpetiole smooth and polished, gastrocæli linear; metathorax entirely black..... 83. **Wilseni**.

Abdomen opaque, postpetiole aciculated, gastrocæli transverse; metathorax generally more or less yellow. 85. **comes**.

Second and third segments yellow, more or less black *at base*.

Gastrocæli deep.

Size medium, .60 inch..... 86. **trizonatus**.

Size small, .35 inch..... 91. **parvus**.

Gastrocæli shallow, subobsolete..... 92. **vescus**.

Second and third segments yellow, narrowly black at apex, fourth segment ferruginous, postpetiole fulvous.....100. **salvus**.

Second to fourth segments more or less yellow, sometimes also postpetiole.

Base of segments 2—4 yellow, apex black, first segment entirely black.

Gastrocæli deep, the yellow band on fourth segment interrupted medially; size rather large.....85. **comes**, var.

- Gastrocæli subobsolete: the yellow band on fourth segment entire; size small.....93. **pomilius**.
- Base of segments 2—4 black, apex yellow, tips of first segment yellow.
- Large; pale orbital lines entire.....87. **munificus**.
- Medium; pale orbital lines interrupted posteriorly.....88. **lætus**.
- Small; pale orbital lines interrupted posteriorly91. **parvus**, var.
- Apex of abdomen black margined with white or yellow.
- Mesothorax black, immaculate; abdomen broad, black with yellow or whitish bands.....94. **flavizonatus**.
- Mesothorax black, with median yellow spot; abdomen narrow, black, with yellow bands.....90. **zebratus**.
- Mesothorax black, with two longitudinal yellow lines; abdomen narrow, slender at base, yellow with black bands.....96. **comptus**.
- Mesothorax fulvous, with two longitudinal yellow lines.....95. **dictiosus**.
- Apex of abdomen fulvous, sometimes marked with white or yellow.
- Antennæ without pale annulus.
- Postpetiole aciculated.
- Segments 5 and 6 black, 7 fulvous.
- First segment entirely black.....98. **inconstans**.
- First segment black, yellow at tip.....99. **infucatus**.
- Segments 5—7 more or less fulvous or ferruginous.
- Posterior femora black.
- Abdominal segments one to three black, with yellow band at apex of each.....103. **zelotypus**.
- Abdominal segments two to five yellow or fulvous, narrowly black at base.....104. **creperus**.
- Abdominal segments varied with yellow, ferruginous and black, segments 2 and 3 more or less yellow at base.....105. **variegatus**.
- Posterior femora fulvous.
- Mesothorax black or ferruginous.....106. **Grotei**.
- Mesothorax black, with two yellow stripes.....107. **delicatus**.
- Postpetiole punctured.....89. **mimicus**.
- Antennæ with pale annulus.
- Postpetiole aciculated; apical segment fulvous..... 104. **creperus**, var?
- Postpetiole punctured; apical segment white.110. **Heiligbrodti**.
- Postpetiole smooth and polished; apical segments fulvous.
- Posterior femora black.....108. **paratus**.
- Posterior femora fulvous.....109. **vinulus**.
- Section IV.**—*Abdomen fulvo-ferruginous, apical margins of segments 1—4, and terminal segment, yellow*.....111. **honestus**.
- Section V.**—*Abdomen bright saffron-yellow, the three or four apical segments black; legs entirely yellow*.....112. **milvus**.
- Section VI.**—*Abdomen more or less ferruginous, apex always black.*
- Segment 3 ferruginous at base, remaining segments black; wings subhyaline; face, scutellum and legs yellow.....**Ambly. Quebecensis**, var.
- Segments 2—4 more or less ferruginous.
- Wings fuliginous.
- Posterior legs black.
- Scutellum black; the second and third segments of abdomen pale ferruginous.....**Ambly. magnus**.

- Scutellum white; the second, third and base of fourth segments of abdomen yellowish ferruginous.....116. **Belfragei**.
- Posterior legs and the second, third and fourth segments of abdomen ferruginous.....137. **rufiventris**, var?
- Wings hyaline or subhyaline.
- Antennæ without pale annulus.
- Scutellum black.
- Posterior femora black, tibiæ yellow, black at tips; four apical segments of abdomen and the head entirely black.....122. **cervulus**.
- Posterior femora and tibiæ ferruginous, tipped with black; four apical segments of abdomen black; face with pale lateral margins.....123. **decoratus**.
- Posterior femora and tibiæ ferruginous; two apical segments of abdomen black; face with pale lateral margins....126. **limbifrons**.
- Scutellum more or less pale.
- Posterior coxæ black, or black and white.
- Postpetiole coarsely granulated, not longitudinally rugose; posterior coxæ black and white.....**Ambly. electus**.
- Postpetiole very coarsely longitudinally rugose, also the three following segments; posterior coxæ black.....117. **procox**.
- Postpetiole finely, distinctly aciculated.
- Scutellum flat.
- Posterior femora black; abdominal segments 2 and 3 entirely ferruginous; scutellum entirely white.....115. **restrictus**.
- Posterior femora ferruginous; abdominal segments 2 and 3 ferruginous varied with fuscous or black; scutellum white only at apex.
- Face black, clypeus yellow.....82. **bipunctatus**, var.
- Face entirely yellow.....**Ambly. Quebecensis**.
- Scutellum convex.....160. **instabilis**.
- Postpetiole very finely and indistinctly sculptured; abdominal segments 2 and 3 ferruginous.....124. **lachrymans**.
- Posterior coxæ ferruginous.....125. **citrifrons**.
- Antennæ with pale annulus.
- Apical segments of abdomen entirely black.
- Posterior coxæ, trochanters and femora black.....118. **levicalus**.
- Posterior coxæ, trochanters and femora ferruginous...121. **hospitus**.
- Apical segments of abdomen marked with white.....120. **finitimus**.
- Section VII.**—*Abdomen ferruginous or fulvous, the first and base or apex of two or three following segments more or less black, apex never black.*
- Wings dark fuliginous or black.
- Antennæ without pale annulus.
- Abdomen ferruginous, segments 1—4 more or less black at base; scutellum yellow142. **succinetus**.
- Abdomen ferruginous, first segment only black.
- Posterior legs entirely black.
- Head large, subquadrate, cheeks convex.....135. **grandis**.
- Head small, subtriangular, cheeks flattened.
- Scutellum black; postpetiole aciculated..... 137. **rufiventris**.
- Scutellum with white spot; postpetiole coarsely rugose; four anterior coxæ white beneath.....138. **placidus**.

- Posterior legs black, their tibiæ with white line or spot laterally towards base; scutellum white; scape entirely black.....139. **devictor**.
- Posterior legs black, their femora and tibiæ ferruginous; scutellum black. Abdomen brown-ferruginous.137. **rufiventris**, var.
- Abdomen and legs entirely ferruginous.
- Thorax black, mesothorax, scutellum and disc of metathorax ferruginous.....148. **crudus**.
- Thorax entirely ferruginous.....146. **cupitus**.
- Antennæ with pale annulus.
- Head and thorax black; abdomen narrow, subcylindrical, segments not constricted at base.....141. **iusolens**.
- Head and thorax ferruginous, metathorax and pleura sometimes blackish; abdominal segments constricted at base.....149. **trogiformis**.
- Wings hyaline or subhyaline, sometimes pale ferruginous.
- Antennæ without pale annulus.
- Abdomen ferruginous, basal margin of segments more or less black.
- Head and thorax black.
- Posterior legs black, their tibiæ yellow, black at tips.
- First abdominal segment entirely black.....151. **animosus**.
- First abdominal segment black, yellow at apex.....104. **creperus**.
- Posterior legs ferruginous; mesothorax more or less dull ferruginous.
- First and base of second segments of abdomen black; metathorax entirely black.....152. **discus**.
- First and second segments of abdomen entirely ferruginous; metathorax more or less marked with ferruginous....150. **difficilis**.
- Head and thorax ferruginous, pleura generally black beneath.
- Gastrocœli deep, foveiform; postpetiole aciculated.....185. **longulus**.
- Gastrocœli linear; postpetiole smooth and polished...186. **volens**, var.
- Abdomen ferruginous, first segment only black.
- Scutellum black.
- Sides of face white.....158. **Saundersi**.
- Face entirely yellow.....**Ambly. fraternus**.
- Scutellum pale at apex; face entirely whitish.....157. **vulfus**.
- Scutellum entirely white or yellow.
- Posterior femora black.
- All the coxæ black.
- Posterior trochanters white.....154. **vinulentus**.
- Posterior trochanters black.....**Ambly. nubivagus**.
- Four anterior coxæ white.....153. **allapsus**.
- Posterior femora ferruginous.....155. **nuncius**.
- Abdomen entirely ferruginous.
- Posterior femora black; thorax black.....**Ambly. nubivagus**, var.
- Posterior femora ferruginous; thorax mostly ferruginous.
- Head black and yellow.
- Mesothorax black.....176. **libens**.
- Mesothorax ferruginous.....190. **utilis**.
- Head ferruginous, face yellow.....191. **scibilis**.
- Head entirely ferruginous.....195. **rubicundus**.
- Antennæ with pale annulus.
- Posterior coxæ black, or black and white.
- Gastrocœli foveiform, transverse or oblique, distinct.
- Abdomen immaculate, first segment except apex black.....166. **vater**.

- Abdomen with two basal segments black, apical corners of segments 1—4 with white spot.....167. **lascivus**.
- Gastrocœli elongate, linear, subobsolete or wanting.
- Clypeus broadly concave; abdomen fulvous, generally with fuscous spots on segments 2—4.....170. **w-album**.
- Clypeus with a more or less distinct medial impression or fovea; abdomen fulvous or ferruginous, second and following segments not marked with fuscous.....171. **duplicatus**.
- Clypeus flat or subconvex, not excavate medially; abdomen fulvous, generally more or less marked with fuscous.....175. **scitulus**.
- Posterior coxæ ferruginous.
- Abdomen with a more or less distinct blackish band.
- Segments 2—4 or 5 narrowly black at base.....186. **volens**.
- Segments 2 and 3 narrowly black at apex.....187. **propitius**.
- Abdomen without blackish bands.
- Posterior tibiæ black, with white annulus; tips of their femora and tibiæ entirely blackish.....172. **annulatus**.
- Posterior legs entirely honey-yellow; their tibiæ and tarsi sometimes dusky, but never with pale annulus.
- Pleura ferruginous; metathorax with two acute spines; head ferruginous, face pale, no orbital lines; posterior femora long and slender.....192. **muconatus**.
- Pleura whitish; metathorax with two short subacute spines; head with face and broad orbital lines white; posterior femora short and subrobust.....197. **factus**.

1. **Orpheus**, Cress. Proc. Ent. Soc. Phil. iii, p. 136, ♀.

Hab.—Mass., Pa. A large, somewhat shining, black species with no pale markings, except a white annulus on antennæ, and in one specimen a subobsolete spot on tip of scutellum; wings smoky. Length ♀ .75 inch.

The large, subquadrate head and subsinuate anterior margin of clypeus refer this and the next species to *Chasmodes*, Wesmael.

2. **saucius**, Cress. Proc. Ent. Soc. Phil. iii, p. 137, ♀; Trans. Am. Ent. Soc. i, p. 293.

Hab.—Pa., N. C. A shining black, immaculate species, with a large subquadrate head; antennæ with a broad white annulus; wings fuliginous; anterior margin of clypeus sinuate. Length ♀ .60 inch.

3. **maurus**, Cress. Proc. Ent. Soc. Phil. iii, p. 135, ♀.

Hab.—Va., N. C., Ga. A large dull black species with blackish violaceous wings, and scabrous postpetiole; antennæ with a broad white annulus. A specimen from N. C. has a short white line in front of tegulæ wanting in other specimens. Length ♀ .76 inch.

4. *germanus*, n. sp.

♀.—Dull black, mesothorax, scutellum and apex of abdomen shining; a short line on upper anterior orbits, spot at summit of eyes, broad annulus on antennæ, interrupted beneath and dot beneath tegulæ white; the four or five basal joints of flagellum subequal and about twice longer than broad; scutellum slightly convex, sparsely and rather strongly punctured, sometimes with two pale spots at tip; central area of metathorax subtriangular with anterior angle rounded; wings uniformly blackish-fuliginous; posterior coxæ with a small patch of dense black pubescence at tip beneath; abdomen fusiform, densely and rather strongly punctured on second and third segments, gradually less strongly so on remaining segments; first segment finely longitudinally aciculated at tip; gastrocoeli large and deep. Length .65 inch.

Hab.—Mass., W. Va., (Ridings). Closely allied to *maurus* which however has the apex of first abdominal segment scabrous and basal middle of second segment longitudinally striated.

5. *viola*, Cress. Proc. Ent. Soc. Phil. iii, p. 137, ♀; Trans. Am. Ent. Soc. i, p. 292.

Hab.—Can., Pa., Va., Ill., Ga., Tex. This is a shining black, immaculate species with dark fusco-violaceous wings, and readily distinguished by the punctured postpetiole; anteunæ with rather broad white annulus. Length ♀ .55—.65 inch.

6. *malacus*, Say, Contrib. Mael. Lye. i, p. 72.

affer, Cress. Proc. Ent. Soc. Phil. iii, p. 138, ♀.

Hab.—Can., N. Y., N. J., Pa., Ill. A dull black, immaculate species, with fuliginous wings and broadly fusiform abdomen; pale annulus on antennæ rather broad. The gastrocoeli are shallow and rugose. Length ♀ .50—.60 inch.

7. *cincticornis*, Cress. Proc. Ent. Soc. Phil. iii, p. 139, ♀.

Hab.—Can., Mass., Pa., Ill., N. C. A slender dull black, immaculate, dark winged species of which *galenus* is probably the male; antennæ with a broad white annulus. The tuberculiform pubescent patch on posterior coxæ will readily distinguish this species. Length ♀ .50—.60 inch.

8. *galenus*, Cress. Trans. Am. Ent. Soc. Phil. i, p. 292, ♂.

Hab.—Can., Mass., Pa., Va., Ill. A narrow, elongate, dull black, immaculate species, with broad yellowish annulus on antennæ and fuliginous wings. Length ♂ .60—.67 inch.

Probably the ♂ of *cincticornis*.

9. *torvinus*, Cress. Trans. Am. Ent. Soc. i, p. 292, ♂.

Hab.—Illinois. A rather large dull black immaculate species with narrow pale annulus on antennæ and fuliginous wings. Length ♂ .70 inch.

This and *citimus* may be sexes of the same species.

10. *citimus*, n. sp.

♂.—Deep black; sides of face, dot on each side of clypeus, labrum, spot on mandibles, palpi except base, scape beneath, narrow interrupted annulus on middle of antennæ and line on four anterior tibiæ in front, white; antennæ long, slender at tips; thorax rather shining; disc of mesothorax sparsely punctured; scutellum convex and strongly punctured; metathorax coarsely rugose, excavated posteriorly, central area semicircular; wings blackish-fuliginous, paler in middle of costal cells and at apex; legs slender; abdomen opaque, rather shining at tip; apex of first segment moderately broad and coarsely longitudinally aciculated, second and following segments confluent punctured, gradually less strongly so towards apex, base of second longitudinally rugose, gastrocoeli large and very deep. Length .70 inch.

Hab.—White Mts., N. H., (Austin). Allied to *torvinus*, which has much shorter antennæ and the four anterior tibiæ annulated at base with white.

11. *centrator*, Say, Am. Ent. pl. 22, ♀.

fortis, Prov. Nat. Can. vii, p. 79, ♀.

Hab.—Can., Pa., N. C. A large dull black species, with dark fuscous wings and at once recognized by the reddish-brown head, mesothorax and scutellum; annulus on antennæ very broad and yellowish. Length ♀ .70 inch.

This is probably the ♀ of *flavicornis*.

12. *flavicornis*, Cress. Proc. Ent. Soc. Phil. iii, p. 140, ♂.

Hab.—Can., N. Y., Pa. A large dull black immaculate species, with fulvous-yellow antennæ and fuliginous wings. Length ♂ .70 inch.

Probably the ♂ of *centrator*.

13. *solitus*, Cress. Proc. Cal. Acad. Nat. Sci. 1877, ♀.

Hab.—Colorado; Brit. Columbia. A small immaculate black species with purplish-blue abdomen and smoky wings; pale annulus on antennæ rather narrow. The postpetiole is punctured, and gastrocoeli small, punctiform. Length ♀ .30—.43 inch.

14. *scriptifrons*, n. sp.

♂.—Dull black; face more or less white, sometimes with only upper margin irregularly white; clypeus sometimes with two oblique white marks; antennæ with a white annulus; a short white line before tegulæ; tegulæ subconvex, punctured; metathorax obliquely truncate behind, lateral angles spiniform, central area small, semicircular or subquadrate; wings tinged with fuscous;

legs slender, four anterior knees and their tibiæ in front white; abdomen opaque, first segment subopaque, not broad at tip and finely roughened or aciculate, second and third segments densely punctured, fourth less densely so and remaining segments smooth and shining; base of second segment depressed, rugose, gastrocoeli large, shallow, coarsely rugose; apical margin of second and third segments narrowly and subobsoletely dull ferruginous. Length .60 inch.

Hab.—Canada, (Pettit, Saunders).

15. *macilentus*, Cress. Proc. Ent. Soc. Phil. iv, p. 249, ♂.

Hab.—Colorado. A long, narrow species, with the body dull opaque black, except the mesothorax, thorax beneath and scutellum, which are shining, the latter polished and impunctured; head small; face, anterior orbits, clypeus, except a brown spot on its anterior middle, mandibles and palpi, lemon-yellow; the antennæ are very long, slender, tapering to a fine point at tip, dull black, basal joint beneath spotted with yellowish; wings yellowish-hyaline; legs black, coxæ more or less yellow beneath, anterior and intermediate legs mostly yellow, posterior tibiæ with a yellow band at base beneath, and their tarsi yellowish-fuscous; abdomen long and narrow, immaculate. Length ♂ .60 inch.

16. *corvinus*, n. sp.

♀.—Small, black, shining, feebly punctured; antennæ robust, thickened at tip, a narrow white annulus at about the middle, joints three and four short, subequal, not twice longer than broad; scutellum flat, broad at tip, sparsely punctured; metathorax with upper face flattened, truncate behind and excavated medially, upper angles prominent, tuberculiform, central area large elongate-truncate, extending the entire length of upper face; wings subhyaline; legs robust, femora swollen, four anterior tibiæ and all the tarsi more or less tinged with rufous, all the tibiæ with a large white spot on outer side rather above the middle, posterior coxæ with a small brown pubescent patch at tip beneath; abdomen broadly fusiform, second segment sparsely and more strongly punctured than the third, gastrocoeli small, subobsolete; first segment gradually and rather broadly dilated at tip which is shining and indistinctly aciculated. Length .35 inch.

Hab.—White Mts., N. H., (Morrison).

17. *odiosus*, Cress. Proc. Cal. Acad. Nat. Sci. 1877, ♂.

Hab.—California. A subrobust rather shining black species with entirely black antennæ and a pale spot on each side before the wings; the wings are slightly smoky, and the abdomen is faintly tinged with blue. Length ♂ .60 inch.

18. *saevus*, Cress. Trans. Am. Ent. Soc. i, p. 296, ♀.

Hab.—Illinois. The body is entirely black, except a faint pale line at tip of scutellum and two conspicuous white spots at tip of abdomen. The antennæ have a broad white annulus and the wings

are clear; postpetiole smooth and shining with apex punctured. Length ♀ .47 inch.

19. *ater*, Cress. Proc. Ent. Soc. Phil. iii, p. 138, ♀.

Hab.—New York. A medium size black species, immaculate except pale line on anterior orbits and dot before tegulæ; antennæ with rather broad white annulus and wings faintly smoky; scutellum quite flat and deeply punctured; postpetiole narrow and minutely aciculated; second and third segments of abdomen densely punctured, the former coarsely aciculated between the gastrocoeli, which are large and deep. Length ♀ .57 inch.

20. *apertus*, Cress. Trans. Am. Ent. Soc. i, p. 293, ♀.

Hab.—Can., Ct., N. Y., Ill. Closely resembles *ater*, but rather smaller, with longer antennæ and larger head, and easily separated by the punctured postpetiole and less strongly sculptured abdomen. One specimen from Illinois has the apical margin of scutellum pale. Length ♀ .50 inch.

21. *acerbus*, Cress. Trans. Am. Ent. Soc. i, p. 293, ♂.

Hab.—Can., N. H., Mass., Ill. A rather small, slender, immaculate black species with narrow pale annulus on antennæ, and hyaline wings. Length ♂ .35—.50 inch.

22. *chalybeus*, n. sp.

♀—Black, shining; metathorax and abdomen steel-blue; upper anterior orbits, interrupted on each side of ocelli, annulus on antennæ and anterior tibiæ in front, white; antennæ conspicuously flattened towards apex, third joint twice longer than broad and longer than the fourth; scutellum flat and sparsely punctured; metathorax opaque, strongly punctured, nearly smooth at base, deeply excavated behind, central area small, quadrate, anterior margin indistinct; wings slightly tinged with brown, areolet smaller than usual, nearly triangular; posterior coxæ and femora tinged with blue, their coxæ nude beneath and strongly punctured; abdomen brilliant steel-blue, smooth and polished at apex, segments two to four with small deep punctures becoming confluent on disc; first segment broadly dilated at apex and coarsely punctured; basal middle of second segment longitudinally striated, gastrocoeli large and deep. Length .65 inch.

Hab.—Massachusetts, (Ridings). Closely allied to *cæruleus* which, however, has a distinct pubescent patch on underside of posterior coxæ.

23. *cæruleus*, Cress. Proc. Ent. Soc. Phil. iii, p. 149, ♀.

Hab.—Can., Mass., Pa., N. J., Md., Va., Ill., Ga., Tex. Easily known by the beautiful steel-blue color of the abdomen, and sometimes of the whole body. The ♂ has the abdomen much more coarsely sculptured and more or less opaque and consequently of a less brilliant

blue color; the face and clypeus are entirely white, as well as the scape beneath, and in two specimens from Ga., the posterior femora have a broad white stripe on outer side. The postpetiole has a white spot on each side at tip, sometimes subobsolete or wanting. A single ♀ from Va., has the body entirely of a brilliant steel-blue color, with no pale markings excepting narrow, interrupted orbital lines and a dot on each side of scutellum. Length ♂ ♀ .45—.70 inch.

24. *pulcher*, Brullé, Hym. p. 304.

Hab.—Can., N. Y., La. This handsome species is closely allied to *cæruleus*, but is more robust, the thorax and legs much more elaborately ornamented with white, and the posterior coxæ of ♀ are destitute of the pubescent scopa seen in *cæruleus*. Length ♂ ♀ .65 inch.

25. *navus*, Say, Bost. Jour. Nat. Hist. i, p. 229.

cinctipes, Prov. Nat. Can. vii, p. 51, ♀.

Hab.—Can., Pa., Md., Ill. A rather small species, with a more or less bluish tinge on the abdomen; the orbits, spot on each side of clypeus, palpi, annulus on antennæ, collar, sutural line in front of wings, a line on each side of scutellum, spot on four anterior coxæ beneath, all the trochanters, an annulus on the tibiæ at base and another on base of tarsi, all white; coxal scopa distinct; wings hyaline. The male has the face, clypeus and all the coxæ entirely white; flagellum entirely black. Length ♂ ♀ .40—.45 inch.

26. *scelestus*, Cress. Proc. Ent. Soc. Phil. iii, p. 148, ♀.

Hab.—Illinois. Only a single specimen of this distinct species has been observed. It is easily distinguished by the short antennæ, uniform dark fuscous wings and smooth finely punctured abdomen. The antennæ have a white annulus; a spot on scutellum and two spots at tip of abdomen are the only pale markings of the body. The postpetiole is smooth on the disc and punctured on the sides; coxal scopa distinct. Length ♀ .50 inch.

27. *caliginosus*, Cress. Proc. Ent. Soc. Phil. iii, p. 144, ♀.

Hab.—Col., Ill. A dull black species, with white scutellum, broad white annulus on antennæ and fuliginous wings. The head is narrowed towards the mouth. Length ♀ .55 inch.

28. *histricus*, Cress. Trans. Am. Ent. Soc. i, p. 294, ♂.

Hab.—West Virginia. A large dull black species, with fuliginous wings. Sides of face and of clypeus, annulus on antennæ, scape beneath, line before wings and scutellum whitish. Length ♂ .75 inch.

29. *agnitus*, Cress. Proc. Ent. Soc. Phil. iii, p. 151, ♀.

Hab.—Del., Ill., Tex. The abdomen of this species has a faint bluish tinge; the orbits, two dots on clypeus, a broad white annulus on antennæ, line before wings, spot on scutellum and spot or line at tip of postpetiole are all white; postpetiole punctured; wings subhyaline; coxal scopa distinct, whitish. Length ♀ .56 inch.

30. *pepticus*, n. sp.

♂.—Large, black, rather shining, face, except black central stripe dilated on clypeus, orbits, interrupted behind summit of eyes, sides of clypeus, base of mandibles, palpi, scape beneath, upper margin of prothorax, spot on tegulæ, line beneath, spot on scutellum, sometimes a dot behind, spot on four anterior coxæ beneath, line on four anterior femora and their tarsi beneath, and sometimes a spot at tip of first abdominal segment, all white or yellowish-white; wings subhyaline, smoky on apical half; postpetiole longitudinally rugose; gastrocoeli large and deep. Length .75—.80 inch.

Hab.—N. J., Ill. This may prove to be the ♂ of *Orpheus*. It differs from *vittifrons* chiefly by the immaculate posterior tibiæ.

31. *pervagus*, n. sp.

♂.—Black, subopaque, abdomen tinged with blue; face entirely, clypeus except central black spot, base of mandibles, orbits, palpi, scape beneath, collar, upper margin of prothorax, tegulæ, short line beneath, spot on scutellum, four anterior coxæ more or less beneath and their femora and tibiæ beneath, white; wings faintly tinged with fuscous; abdomen densely punctured, smooth at tip, postpetiole and base of second segment longitudinally rugose, gastrocoeli large and deep. Length .63 inch.

Hab.—Canada, (Pettit).

32. *citatus*, Prov. Nat. Can. ix, p. 8, ♂.

Hab.—Can., N. H. A slender black species, with sides of face, annulus on antennæ, scutellum and spot at tip of abdomen white; wings hyaline, faintly clouded at apex; postpetiole smooth and polished; gastrocoeli large and deep. Length ♂ .52 inch.

33. *merus*, n. sp.

♂.—Black, subopaque; orbits broad on face and interrupted behind summit of eyes, sides of clypeus, spot on base of mandibles, scape beneath, broad annulus on antennæ, collar, upper margin of prothorax, spot on tegulæ, short line beneath, scutellum, sometimes spot behind, round spot on flanks of metathorax, spot on anterior coxæ, line on their femora beneath, four anterior tibiæ beneath, apical margin of first abdominal segment, sometimes a small spot on each side of second segment at tip and apical margin of sixth or seventh segments more or less, white; wings hyaline, faintly dusky at apex; postpetiole narrow, smooth and shining, second and third segments densely punctured, roughly so on base of second, gastrocoeli large and deep. Length .52 inch.

Hab.—Mass., Va., (Ridings). It is probable that specimens of this species will occur with apical margins of all the abdominal segments more or less white.

34. **subcyaneus**, Cress. Proc. Ent. Soc. Phil. iii, p. 148, ♀.

pullatus, Cress. Proc. Ent. Soc. Phil. iii, p. 146, ♂.

Hab.—Can., Me., Mass., N. Y., N. J., Pa., Del., Ga., Ill., Col., Tex. The abdomen of this species is more or less strongly tinged with blue or purple, and is finely punctured and shining, the postpetiole broad and punctured and the gastrocoeli small and moderately deep. Annulus on antennæ and scutellum white; wings subhyaline. The ♂ has the sides of the face and clypeus, orbits, tegulæ, line before, scutellum, dot behind, tips of four anterior femora and line on all the tibiæ, white; the flagellum is entirely black; the abdomen longer and narrower. Length ♂ ♀ .35—.60 inch.

35. **neutralis**, Cress. Proc. Cal. Acad. Nat. Sci. 1877, ♂.

Hab.—California. This has much the appearance of a large specimen of *subcyaneus* ♂, but the scape beneath and the posterior legs are entirely black. Length ♂ .65 inch.

36. **vitalis**, n. sp.

♀.—Black, abdomen tinged with blue and shining at tip; orbits of eyes, dilated towards mouth, lateral angles of clypeus, palpi, annulus on antennæ, interrupted beneath, collar, upper margin of prothorax, short line beneath tegulæ, two short lines on disc of mesothorax, large square spot on scutellum, spot on four anterior coxæ and trochanters beneath, extreme tips of their femora and anterior tibiæ in front, all white; antennæ flattened towards apex, third joint more than twice longer than broad and slightly longer than fourth; scutellum flat, sparsely punctured and broadly truncate at tip; central area of metathorax transversely semicircular, not well defined; wings clear hyaline; femora robust, posterior coxæ beneath nude and finely punctured, tibial spurs whitish; abdomen fusiform, slightly tinged with blue, finely punctured, apical segments smooth and shining; first segment broadly dilated at tip, longitudinally aciculate and sparsely punctured; basal middle of segments two and three longitudinally striated; gastrocoeli very large and deep. Length .43 inch.

Hab.—New York. Allied to *subcyaneus* but very distinct by the ornamentation of the head and the stronger sculpturing of the abdomen.

37. **mendax**, n. sp.

♀.—Black, subopaque, finely punctured; rather broad anterior orbits extending from summit of eyes to a little below antennæ, palpi, narrow annulus on antennæ, collar, upper margin of prothorax, short line beneath tegulæ, square spot on scutellum, tips of anterior femora and their tibiæ in front, white; antennæ rather stout, with third joint more than twice longer than broad and distinctly longer than fourth; scutellum flat, polished, feebly punctured, broadly truncate at tip; metathorax coarsely punctured, central area large subquadrate with sides rounded, posterior face broadly, not very deeply excavated; wings hyaline; femora rather stout, posterior coxæ nude beneath, finely and closely punctured, tibial spurs pale; abdomen fusiform, segments two and three closely and finely punctured, remaining segments indistinctly

punctured and shining; first segment gradually, not broadly dilated at tip which is finely longitudinally aciculated; gastrocoeli small and deep. Length .40 inch.

Hab.—Can., Mass. Differs from *subcyanus* by the more slender form, by the black and more closely and finely punctured abdomen, and by the narrower and finely aciculated postpetiole.

38. *bimembris*, Prov. Nat. Can. ix, p. 8, ♀.

Hab.—Canada. A medium sized, robust, dull black species, with no pale markings on body except the scutellum and two spots at apex of abdomen; the antennæ have each a broad yellowish-white annulus, and the wings are uniformly pale yellowish-fuscous. Length ♀ .50 inch.

39. *truculentus*, n. sp.

♀.—Opaque black, strongly and confluent punctured; upper anterior orbits, annulus on antennæ, short line before and one beneath tegulæ, scutellum entirely and large spot on disc of three apical segments of abdomen, white; antennæ robust, strongly involute, third joint scarcely twice longer than broad, and longer than the fourth which is nearly square; cheeks confluent punctured and flattened; scutellum broad, flat, sparsely punctured, rapidly narrowed to tip which is truncate; metathorax deeply excavated behind, central area long, subquadrate; wings uniformly yellowish-fuliginous; legs robust, tarsi rufo-fuscous, four anterior tibiæ tinged with brown, the anterior pair and tips of femora pale rufo-fuscous in front, posterior coxæ nude beneath and strongly punctured; abdomen closely and strongly punctured on segments two and three, confluent so on middle and base of third segment, apical segments gradually less strongly punctured; first segment broadly dilated at tip and longitudinally aciculated; gastrocoeli rather large and very deep. Length .45 inch.

Hab.—White Mts., N. H., (Austin). Stouter and more coarsely sculptured than *brevicinctor* which it somewhat resembles.

40. *brevicinctor*, Say, Am. Ent. pl. 22.

Hab.—Can., Mass., N. J., Del., Md., Col. A small, slender, dull black species with pale annulus on antennæ, white scutellum and two white spots at apex of abdomen; wings subhyaline. Closely allied to *extrematatis* which has the basal joint of posterior trochanters white; in this species it is black. Length .35—.50 inch.

41. *extrematatis*, Cress. Proc. Ent. Soc. Phil. iii, p. 149, ♀.

Phygadeuon niger, Prov. Nat. Can. vi, p. 280, ♀.

Hab.—Can., N. H., Mass., Ill., La. A small dull black species, with annulus on antennæ, scutellum, basal joint of posterior trochanters, and spot at tip of abdomen, white; wings smoky; coxal scopa ♀ distinct. Length ♂ ♀ .38—.48 inch.

42. *atrox*, n. sp.

♀.—Robust, black, opaque, mesothorax, scutellum and apex of abdomen shining; annulus on antennæ, scutellum, anterior tibiæ, intermediate pair except tip, broad annulus on posterior pair, and spot on middle of two apical segments of abdomen, white; antennæ short, stout, strongly involute, third joint not twice longer than broad and longer than fourth which is nearly quadrate, apical joints attenuated; upper anterior orbits narrowly reddish; mesothorax confluent punctured; scutellum broad, flat, polished, impunctured, apex truncate; metathorax opaque, rugose, posterior face rather deeply excavated, lateral carina prominent, central area large, quadrate; wings uniformly brown, stigma yellowish-brown, nervures black; legs rather robust, four anterior tarsi more or less brown, posterior coxæ pubescent beneath, but without a distinct scopa; abdomen elongate-ovate or broadly fusiform; first segment rather broadly dilated at tip and longitudinally aciculated; second and third segments closely punctured, strongly so at base of second and more feebly on third and following segments; gastrocoeli moderately large and deep. Length .70 inch.

Hab.—Canada. A very distinct species.

43. *stygicus*.

signatipes, Prov. (nec *Cress.*), Nat. Can. vii, p. 52, ♀.

Hab.—Can., Mass. This is a robust black species with smoky hyaline wings; annulus on antennæ, scutellum, annulus at base of all the tibiæ, and spot at apex of abdomen, white; the coxal scopa distinct. Length ♀ .50 inch.

44. *pilosulus*, Prov. Nat. Can. vii, p. 25, ♀.

Hab.—Can., Mass. A subrobust black species, with no other markings except a white annulus on flagellum and a white spot near base of all the tibiæ; wings clear; postpetiole narrow, punctured; gastrocoeli subobsolete, feebly indicated, second and base of third segments closely punctured, remainder impunctured, shining. Length ♀ .45 inch.

45. *pravus*, n. sp.

♀.—Dull black, mesothorax, scutellum and apex of abdomen shining; upper anterior orbits, palpi, narrow annulus on antennæ, narrow upper margin of prothorax, sometimes interrupted spot beneath tegulæ, sometimes apex of scutellum and elongate spot on outer side of all the tibiæ, white; clypeus and mandibles more or less tinged with ferruginous; antennæ short, stout, with short robust joints, third and fourth joints equal in length and each about one and a half times longer than wide; mesothorax and scutellum sparsely punctured and polished, the latter flat and broadly rounded behind; metathorax opaque, scabrous, posterior face deeply excavated, lateral angles prominent, central area elongate subquadrate, rounded anteriorly; wings faintly tinged with brown; legs short, robust, femora swollen, tips of anterior femora, their tibiæ and tarsi tinged with ferruginous, posterior coxæ beneath nude, sparsely punctured; abdomen oblong-ovate; first segment rather broadly dilated at apex, with the surface even and finely roughened; second segment closely and finely

punctured more sparsely so toward apex, gastrocoeli shallow and longitudinally striated; third and following segments sparsely punctured or smooth and shining. Length .40—.45 inch.

Hab.—Can., (Pettit); Mass., (Ridings). Closely allied to *sagus* and *pilosulus*; from the former it differs by the posterior coxæ beneath being destitute of the pubescent patch, and from *pilosulus* by the much stouter legs, and from both by the shorter and stouter basal joints of the flagellum.

46. *sagus*, Cress. Trans. Am. Ent. Soc. i, p. 294, ♀.

Hab.—Illinois. A shining black species, with annulus on antennæ, line on posterior orbits ♀, all beneath antennæ, orbits and scape beneath ♂, dot or line before tegulæ, spot on scutellum, and line on all the tibiæ, white; wings clear or faintly dusky; coxal scopæ ♀ very large, covering nearly the entire under surface. Length ♂ ♀ .45—.55 inch.

The ♂ described with ♀ of this species, proves to belong to a new species next described (*promptus*), and differs from the true ♂ of *sagus* principally by the scape being entirely black and the posterior tibiæ having an entire white annulus.

47. *promptus*, n. sp.

♀.—Black, mesothorax, scutellum and apex of abdomen shining; annulus on antennæ, scutellum and rather broad annulus on all the tibiæ interrupted on two anterior pairs, white; upper anterior orbits sometimes narrowly reddish; cheeks swollen; antennæ short, robust, with short, thick joints, third joint about one and a half times longer than broad and subequal with the fourth, the joints beyond annulus thickened; mesothorax sparsely punctured; scutellum broad, flat, with a few scattered punctures, broadly truncate at tip, metathorax strongly punctured, posterior face broadly not deeply excavated, lateral angles prominent, central area nearly quadrate; wings tinged with fuscous, rather darker at tips; legs robust, femora short, swollen, tips of anterior tibiæ and their tarsi brown, apex of posterior coxæ beneath with a patch of short dense brown pubescence; abdomen oblong ovate, second segment closely and finely punctured, sparsely so at tip, third indistinctly punctured and remaining segments smooth and shining; first segment broadly dilated at apex and sparsely punctured; gastrocoeli subobsolete. Length .46 inch.

♂.—Face entirely, clypeus, spot on mandibles, palpi, orbits interrupted anteriorly below ocelli and more or less on the cheeks, a narrow annulus on antennæ, collar, upper margin of prothorax, short line beneath tegulæ, scutellum, four anterior tibiæ more or less and a broad annulus on posterior tibiæ, all white; scutellum rather convex; elevated lines on metathorax sharply defined, the central area rounded anteriorly; wings darker at apex than in female; abdomen more densely punctured, apex of first segment narrow, base of second rugose, the gastrocoeli large, not deep but coarsely rugose; body, antennæ and legs much more slender than in female. Length .55 inch.

Hab.—Mass., (Ridings); White Mts., N. H., (Morrison). Separated at once from *sagus* by the white annulus on posterior tibiæ

being entire and not interrupted behind; the basal joints of the flagellum are shorter and stouter. In *sagus* ♀ the pubescent patch on posterior coxæ covers nearly the entire under surface. In *sagus* ♂ the scape beneath is white, while in *promptus* it is black.

48. *vagans*, Prov. Nat. Can. vii, p. 51, ♂.

Hab.—Canada. Slender, black, shining; face, clypeus, mandibles, palpi, orbits, slightly interrupted, annulus on flagellum, scape beneath, margins of prothorax, line beneath wings, tegulæ, scutellums, four anterior coxæ and trochanters and legs in front, all white; posterior tibiæ pale, black at tips, tarsi dusky, pale at base of joints; wings hyaline; postpetiole flattened, indistinctly sculptured; gastrocoeli indicated by a rugosity, not deep. Length ♂ .40—.45 inch.

49. *vittifrons*, Cress. Proc. Ent. Soc. Phil. iii, p. 143, ♂.

Hab.—Del., Va., Ga. A beautiful species, of rather large size, shining black, with the orbits, face except a broad black stripe down the middle, spot on each side of clypeus, mandibles, palpi, scape beneath, tegulæ, a line before and a short one beneath, scutellum more or less, a small spot behind, four anterior coxæ beneath, most of their tibiæ and tarsi, a line on their femora at tips within, tips of all the femora and a line on the posterior tibiæ exteriorly, all white; antennæ long, slender at tips, the flagellum entirely black; wings fuliginous, with a brilliant purplish reflection, sometimes conspicuously hyaline or subhyaline at base; abdomen slightly tinged with blue, shining, rather closely and uniformly punctured, postpetiole punctured. Length ♂ .70—.75 inch.

50. *recens*, n. sp.

♂.—Slender, black, rather shining; orbits, slightly interrupted at summit of eyes, face except a black spot on middle forming a stripe and extending to tip of clypeus, sides of clypeus, spot on mandibles, palpi, scape beneath, upper margin of prothorax, two short lines on disc of mesothorax, tegulæ, short line beneath, scutellum, dot behind, a dot on each side before, spot on four anterior coxæ beneath, stripe on their femora, their tibiæ and tarsi in front, tips of posterior femora, a line on entire length of their tibiæ behind and a stripe on basal joint of their tarsi, all white; wings hyaline, fuliginous on apical margin; abdomen tinged with purple, closely punctured, especially at base of segments, postpetiole sparsely punctured, gastrocoeli large and deep. Length .62 inch.

Hab.—West Virginia, (Ridings).

51. *cordatus*, Cress. Proc. Ent. Soc. Phil. iii, p. 146, ♂.

Hab.—Colorado. A rather slender black species, with the abdomen tinged with purple; the wings subhyaline, darker at tips; anterior orbits (very narrow above the antennæ and squarely emarginate on

each side just above the clypeus), a spot on each side of clypeus, spot on mandibles, palpi, spot on tegulae, another in front and a line beneath, a cordate spot on scutellum, tips of four anterior femora, their tibiae and tarsi within, and a stripe on posterior tibiae at base, all white; postpetiole suddenly dilated, punctured and shining. Length ♂ .50 inch.

52. *jejunus*.

Ischnus jejunus, Cress. Proc. Ent. Soc. Phil. iii, p. 186, ♂.

Hab.—Mass., N. Y., Ill. A slender black species, with a faint bluish tinge on abdomen, the postpetiole of which is narrow and nearly smooth; the face entirely, clypeus, orbits, scape beneath, tegulae, line before and short one beneath, two short lines on disc of mesothorax, scutellum, spot on four anterior coxae beneath, their trochanters, four anterior legs in front and line at base of posterior tibiae behind, all white; wings hyaline. Length ♂ .50—.60 inch.

53. *sublatus*.

Ischnus sublatus, Cress. Proc. Ent. Soc. Phil. iii, p. 186, ♂.

var. *Ischnus proximus*, Cress. id. p. 187, ♂.

Hab.—Can., N. H., Mass., Pa., Va., Ill. This is a slender rather shining, black species, with the face, orbits, clypeus, mandibles, palpi, scape beneath, upper margin of prothorax, tegulae, line beneath, sometimes a spot on disc of mesothorax, scutellum, spot behind, two spots on metathorax behind, four anterior coxae, their femora within, their tibiae and tarsi entirely, sometimes a spot at tip of posterior coxae beneath, basal half of their tibiae, and base of their tarsi, all white; antennae very long and slender; wings hyaline; abdomen narrow, cylindrical, postpetiole narrow, smooth and shining; gastrocoeli shallow. Length ♂ .50—.60 inch.

The variety *proximus* has a whitish annulus on flagellum a little beyond the middle, the hind coxae are black beneath, but almost entirely white above, and the postpetiole has two white spots or a band at tip.

54. *Azotus*, Cress. Proc. Ent. Soc. Phil. iii, p. 150, ♂.

Hab.—Mass., Del., Va. This very pretty species has a slender form, and rather large head. It is of a dull black color, the abdomen which is cylindrical, having a decided bluish tinge; the wings clear, slightly clouded at tips; the face, broad orbits, clypeus, mandibles, palpi, scape beneath, upper margin of prothorax, two short lines on disc of mesothorax, tegulae, line beneath, scutellum, spot behind, four

anterior coxæ, and trochanters, their femora at tips and beneath, their tibiæ and tarsi in front, a line on posterior tibiæ and tarsi exteriorly, and a *trilobed band at tip of postpetiole*, all white; the scutellum is flat; the postpetiole sparsely punctured, shining, second, third and fourth segments densely punctured; gastrocoeli large and very deep. Length ♂ .55—.65 inch.

55. *infidelis*, Cress. Trans. Am. Ent. Soc. i, p. 296, ♂.

Hab.—Mass., Ct. A rather large subrobust black species, with abdomen tinged with blue towards apex which is smooth and shining, while the second, third and fourth segments are longitudinally striated on the middle; the head and thorax are marked as in *Azotus*, except that the clypeus has a central black spot, the pleura has two white spots beneath wings, the anterior one transverse, the posterior one round, and the flanks of metathorax have a large rounded white spot; wings clear; antennæ long, entirely black; postpetiole broadly white at tip, and the third segment is stained with dull yellow on apical margin; the legs are considerably ornamented with white, the posterior femora having a white stripe *above*, which is unusual. Length ♂ .60 inch.

56. *unifasciatus*, Say, Am. Ent. pl. 22.

niger, Brullé, Hym. p. 302.

Hab.—Can., Mass., Pa., Md., Ga., Ill. This common species is of a deep dull black color, the abdomen of ♀ often slightly tinged with blue; anterior orbits, annulus on antennæ, tegulæ, a line before and short one beneath, scutellum and sometimes a spot behind, a stripe on all the tibiæ exteriorly and tip of postpetiole, all white; the ♂ has the face white, generally more or less marked with black, and the clypeus is white, marked with black at tip; in the ♀ the face is black, with the orbits only narrowly white; wings of ♀ are clear, of the ♂ more or less smoky at tips and sometimes uniformly fuscous and violaceous. One ♂ from Canada has the face entirely black except four white spots arranged in a transverse line immediately beneath the antennæ and the clypeus black with a white spot on each side. Length ♂ ♀ .50—.65 inch.

57. *otiosus*, Say, Contrib. Mael. Lye. i, p. 69.

Hab.—Can., Pa., N. J., Del., Ill. Closely resembles *unifasciatus* ♀, but at once distinguished by the round white spot on flanks of metathorax, and the two short white lines on disc of mesothorax. Length ♀ .50—.63 inch.

58. *Bronteus*, Cress. Proc. Ent. Soc. Phil. iii, p. 144, ♂.

Hab.—Can., Pa., Va., Ga. A dull black species with dark wings; the face, scape beneath, tegulæ, scutellum, most of four anterior legs, posterior tibiæ except tips and their tarsi, all yellow. The type has the abdomen entirely black except a subobsolete yellowish spot on each basal corner of third segment, specimens however occur in which these spots gradually enlarge until they form a subobsolete dull yellowish band not only on third segment but also at base of second, and in this respect closely resemble dull colored specimens of *comes*—an extremely variable species. Length .65 inch.

59. *audax*, Cress. Proc. Ent. Soc. Phil. iii, p. 143, ♂.

Hab.—Colorado. This is a deep black opaque species, with the face, scape beneath, scutellum, tips of four anterior femora, their tibiæ and tarsi entirely and basal half or two-thirds of posterior tibiæ and their tarsi white or yellowish-white; wings subhyaline. The abdomen is very densely sculptured especially at base of second segment, and becoming, as is generally the case, gradually less so on apical segments which are mostly impunctured. Length ♂ .55 inch.

60. *cinctitarsis*, Prov. Nat. Can. ix, p. 7.

varipes, Prov. (nec *Grav.*) Nat. Can. vii. p. 50, ♂.

Hab.—Canada. Resembles *audax* in general appearance, but has the posterior tarsi annulated with black at tips of joints, the four anterior coxæ beneath and the second joint of posterior trochanters are white; one specimen has a spot at tip of posterior coxæ beneath. Length ♂ .57—.65 inch.

61. *ornatipes*, Cress. Trans. Am. Ent. Soc. i, p. 294, ♂.

Hab.—West Virginia. This species may be easily known by all the coxæ, femora and tibiæ being white *beneath*; the legs are short and robust, especially the posterior femora; the postpetiole is narrow, shining, with a large puncture on the disc; gastrocoeli small, punctiform; wings clear. Length ♂ .55 inch.

62. *gestuosus*, n. sp

♀.—Small, black, very closely and finely punctured; broad annulus on antennæ, scutellum and spot on middle of two apical segments of abdomen, white; sometimes there is a pale dot on each side of antennæ and a white spot before and beneath tegulæ and on outer side of four anterior coxæ; mandibles, four anterior knees, and tibiæ in front, base of posterior tibiæ, and all the tarsi more or less dull ferruginous; antennæ rather slender, attenuated at tip, third joint twice longer than wide and longer than fourth which is equal with fifth; scutellum slightly convex, polished, sparsely punctured; metathorax obliquely truncated behind, with sharp lateral carina, central area large, quadrate; wings

tinged with fuscous at tips; legs moderately stout, tibial spurs pale, posterior coxæ beneath nude and closely punctured; abdomen oblong-ovate, shining at tip; first segment gradually and rather broadly dilated at tip and more or less distinctly longitudinally aciculate; base of second segment more sparsely and strongly punctured than remainder, gastrocoeli tolerably large and not deep, sometimes tinged with ferruginous. Length .30 inch.

Hab.—White Mts., N. H., (Morrison); Brit. Col., (Croteh). The specimen from British Columbia has base of second abdominal segment strongly tinged with ferruginous.

63. *ventralis*, Cress. Proc. Ent. Soc. Phil. iv, p. 250, ♂.

Hab.—Colorado. This is much like *apicalis*, but more slender; the tegulæ and scutellum bright lemon-yellow, as well as the nervures of the wings at base; the legs are lemon-yellow, except the posterior coxæ, their femora and tips of their tibiæ which are black; the lateral edges of abdominal segments two to five and the two apical ones entirely, are fulvous; venter entirely yellowish; wings subhyaline. Length ♂ .50—.55 inch.

64. *apicalis*, Cress. Proc. Ent. Soc. Phil. iii, p. 152, ♂.

Hab.—Colorado. A dull black species, with pale smoky subviolaceous wings and apex of abdomen fulvous; scutellum with a dull yellowish spot; face, clypeus, scape beneath, and four anterior legs in front bright lemon-yellow; coxæ black, remainder of legs pale ferruginous; mesothorax, scutellum and pleura polished. Length ♂ .55 inch.

65. *semilævis*, Cress. Proc. Ent. Soc. Phil. iii, p. 142, ♀.

Hab.—Colorado. This is a immaculate black species with mesothorax, scutellum and pleura polished and sparsely punctured; the femora robust and ferruginous; the abdomen with a faint bluish tinge, densely punctured and longitudinally rugose on basal middle of second segment, gastrocoeli deep; postpetiole longitudinally aciculated; antennæ short, robust, with a narrow pale annulus on flagellum; the face is broad and unusually short; coxal scopa distinct. Length ♀ .55 inch.

66. *similaris*, Prov. Nat. Can. vii, p. 26, ♂.

Hab.—Canada, (coll. Provancher). This rare species is black, opaque, the thorax above and laterally shining; face and clypeus yellowish-ferruginous, shining, suture and foveæ of clypeus black, also a black dot beneath antennæ; scape pale beneath; scutellum flattened, pubescent, punctured; wings hyaline, nervures black, stigma fulvous; legs fulvo-ferruginous, coxæ and trochanters black; postpetiole aciculated, gastrocoeli large and deep. Length ♂ .65 inch.

67. *pedalis*, Cress. Proc. Ent. Soc. Phil. iii, p. 141, ♂; iv, p. 249, ♀.

Hab.—Colorado. A slender, dull black, immaculate species, with smoky wings and ferruginous legs, except coxæ and trochanters which are black. Length ♂ ♀ .55 inch.

68. *puerilis*, Cress. Trans. Am. Ent. Soc. i, p. 296, ♂.

mellicorvus, Prov. Nat. Can. vii, p. 48, ♂.

Hab.—Can., Mass. A long, slender, black, immaculate species, with clear wings, long slender filiform antennæ which are black above and yellowish beneath, yellow face and pale ferruginous legs except tips of posterior femora, their tibiæ and tarsi which are black; the scutellum is generally dull ferruginous. Length ♂ .40—.50 inch.

69. *helvipes*, Cress. Trans. Am. Ent. Soc. i, p. 297, ♂ ♀.

Phygadeuon ater, Prov. Nat. Can. viii, p. 317, ♀.

Hab.—Can., Mass., Ct., Ill. A small robust, shining black species, with clear wings and short robust ferruginous legs; the orbits of ♂, apex of scutellum and tip of abdomen are white. Length ♂ ♀ .25—.35 inch.

70. *bioculatus*, n. sp.

♀.—Opaque-black; head small, cheeks flat; broad annulus on antennæ, dot before tegulæ, scutellum, anterior knees and tibiæ, intermediate tibiæ except tips, broad annulus on posterior pair and two irregularly formed spots on each side of middle of second abdominal segment, white; antennæ slender, with third joint slender and cylindrical, a little longer than fourth, the joints before apex slightly flattened; mesothorax confluent punctured; scutellum subconvex, broadly truncate at tip, the basal excavation very deep and lateral carina prominent and sharp; metathorax rugose, truncate behind, central area subquadrate, broadly rounded anteriorly; wings uniformly pale brownish, stigma honey-yellow, nervures dark; legs slender, tips of anterior tibiæ and four anterior tarsi more or less dull ferruginous, posterior coxæ beneath nude and closely punctured, opaque; abdomen elongate fusiform, slightly shining at apex; first segment not broadly dilated at tip, longitudinally rugose and in profile subpyramidal; second and third segments strongly confluent punctured, base and middle of second longitudinally rugose, gastrocoeli large and very deep; apical segments almost smooth. Length .53 inch.

♂.—Face, clypens, labrum, spot on mandibles, palpi, scape beneath, tegulæ, short line before and one beneath, spot on four anterior coxæ beneath, anterior femora in front, four anterior knees, their tibiæ and tarsi, basal half of posterior tibiæ and base of their tarsi yellowish; otherwise marked as in ♀.

Hab.—Can., White Mts., N. H. Specimens may be found with the two pale spots on second abdominal segment confluent and forming a band.

71. *uncinatus*, n. sp.

♀.—Robust, dull black; broad annulus on antennæ, scutellum, anterior knees in front, their tibiæ, intermediate tibiæ except tips, broad annulus on posterior pair, a dot on each side of apex of first abdominal segment, a band on apex of second and a spot on middle of three apical segments, all white; antennæ short, robust, strongly involute, joints short, the third not twice longer than broad and subequal with the fourth; scutellum broad, very slightly convex, smooth, polished, and impunctured, apex truncate; metathorax obliquely truncate behind, slightly excavated, lateral carina prominent and sharp, central area large, quadrate; wings uniformly fuliginous; legs tolerably stout, apex of posterior coxæ beneath with a brown pubescent patch; abdomen oblong ovate, closely and deeply punctured on segments two and three, apical segments shining; first segment rather broadly dilated at tip, shining and finely aciculate, in profile subpyramidal, gastrocoeli moderately large and deep. Length .55 inch.

Hab.—Canada, (Pettit). A very distinct species, allied to *feralis* but larger and more robust.

72. *feralis*, Cress. Trans. Am. Ent. Soc. i. p. 301, ♀.

Hab.—Can., N. H., Mass. A rather small robust black species with annulus on antennæ, scutellum, band on tibiæ, band on apex of second abdominal segment and two spots on tip of abdomen white or yellowish, wings subhyaline. One specimen from Canada has a narrow pale band at apex of third abdominal segment. Length ♀ .40—.45 inch.

73. *bizonatus*, Cress. Proc. Ent. Soc. Phil. iii, p. 160, ♀.

Hab.—Colorado. A dull black species, with sides of face, annulus on antennæ, scutellum, most of tibiæ and a band uneven posteriorly, at base of second and third abdominal segments, yellowish-white; wings fusco-hyaline; the antennæ are long and slender. Length ♀ .50 inch.

74. *texanus*, n. sp.

♂.—Small, black, shining; face, clypeus, spot on mandibles, palpi, orbits, interrupted behind summit of eyes, scape beneath, tegulæ, line in front, short line beneath, scutellum, two spots on posterior face of metathorax, four anterior coxæ, all the trochanters, four anterior femora in front, their tibiæ and tarsi, basal two-thirds of posterior tibiæ, their tarsi except tips of joints, apical margin of three basal segments of abdomen and spot on apical segment, yellowish-white; the band on apex of first segment is broad and even, that on second rather broad and strongly sinuate anteriorly, that on third very narrow and subinterrupted medially and dilated laterally; flagellum slender, entirely black; scutellum convex; wings clear; abdomen finely punctured, postpetiole punctured, gastrocoeli rather deep. Length .37 inch.

Hab.—Texas, (Belfrage). A pretty little species.

75. *suadus*, n. sp.

♂.—Small, slender, black; orbits, face, clypeus, mandibles, palpi, scape beneath, annulus on flagellum, line on collar, tegulæ, line before, short one beneath, scutellums, spot behind posterior wings, a zigzag mark on posterior face of metathorax, four anterior coxæ, all the trochanters, four anterior legs in front, basal half of posterior tibiæ, their tarsi, and apical margin of first and second abdominal segments, extending up on sides of second segment, all yellowish-white; antennæ nearly as long as the body, slender; abdomen delicately punctured, postpetiole narrow, nearly smooth, gastrocœli subobsolete, indicated by a pale spot; apex of abdomen piceous. Length .40 inch.

Hab.—Canada. This species has remarkably long antennæ.

76. *calitergus*, Cress. Trans. Am. Ent. Soc. i, p. 299, ♀.

Hab.—Maine. A robust dull black species, with stout antennæ and fusco-hyaline wings; annulus on flagellum, scutellum, band on tibiæ, band on three basal segments of abdomen and two spots on apical segments yellowish-white; coxal scopa distinct. Length ♀ .50 inch.

77. *consignatus*, Cress. Trans. Am. Ent. Soc. i, p. 298, ♂.

Hab.—Mass., W. Va. A dull black species, easily recognized by the white markings of the abdomen which are as follows: a longitudinal spot on each side of second and third segments and apical margins of fourth and following segments except the last, broad on the seventh; the apical margin of the third segment is sometimes narrowly white; wings clear, dusky at tips. Length ♂ .57 inch.

78. *albomarginatus*, Cress. Trans. Am. Ent. Soc. i, p. 297, ♂.

Hab.—Mississippi. A black species with clear wings, and apical margin of all the segments more or less, white; the band on postpetiole is broad, that on second segment narrow but entire, on the three following segments the bands are still narrower and abbreviated laterally, while on the two apical segments they are dilated into spots; face, clypeus, mouth, orbits, scape beneath, upper and anterior margins of prothorax, tegulæ, line beneath, stripe on pleura anteriorly, spot on disc of mesothorax, scutellums, two spots on metathorax, four anterior legs in front and band at base of posterior tibiæ, all whitish. Length ♂ .50 inch.

79. *Blandii*, Cress. Proc. Ent. Soc. Phil. iii, p. 188, ♂.

Hab.—Pennsylvania. This pretty species is black, with the pleura, metathorax and legs fulvous; the antennæ are nearly as long as the body, with a broad white annulus; the face, orbits, two short lines on disc of mesothorax, a sutural line on each side, the tegulæ and a line beneath, anterior margin of the collar, a spot on each side of the meso-

thorax behind the tegulæ, lateral and apical margins of the scutellum, postscutellum, a large mark on each side of pleura, four anterior coxæ and trochanters, the tarsi, the apical margins of the abdominal segments, and the apical segment entirely, all white; posterior tibiæ and base of tarsi blackish; the wings are clear; the base of the metathorax above is blackish. Length ♂ .42 inch.

80. **Dakota**, Cress. Trans. Am. Ent. Soc. i. p. 302, ♂.

Hab.—Dakota Territory. A dull black species with clear wings and a single yellow band on abdomen, (third segment), shading into pale ferruginous posteriorly; the face, scutellum, posterior face of metathorax and most of legs are yellow; antennæ black above, pale beneath. Length ♂ .50 inch.

81. **pictifrons**, Cress. Proc. Ent. Soc. Phil. iii, p. 160, ♂.

Hab.—Colorado. A small slender species, with the second and third abdominal segments entirely yellowish-ferruginous; the face is whitish marked with black, and the scutellum and most of tibiæ yellowish; wings subhyaline. Length ♂ .42 inch.

82. **bipunctatus**, Cress. Proc. Ent. Soc. Phil. iv, p. 253, ♂.

var. *festus*, Cress. id. p. 257, ♂.

Hab.—Colorado. In the type the head is entirely black with two yellow spots on clypeus; the thorax entirely black except a yellow dot on tegulæ, another beneath and one on tip of scutellum; legs yellow, coxæ and trochanters black, and femora and tips of posterior tibiæ fulvous; second and third segments of abdomen yellowish-ferruginous, the former pale at base and the latter with a large fuscous stain at base. The variety *festus* differs by the clypeus being yellow except a black spot at tip, and the second and third abdominal segments being dull ferruginous, stained with fuscous; wings subhyaline. Length ♂ .55 inch.

83. **Wilsoni**.

Ischnus Wilsoni, Cress. Proc. Ent. Soc. Phil. iii, p. 188, ♂.

Hab.—N. J., Del., Va. A small, elongate, slender, shining black species; the abdomen convex and cylindrical with the second and third segments entirely yellow except narrow black apical margin; the antennæ are black above, pale beneath; face, scutellum and most of legs yellow; wings yellowish-hyaline. Length ♂ .40—50 inch.

84. **versabilis**, n. sp.

♂.—Dull black; line on anterior orbits, face, clypeus, mandibles, labrum, palpi, scape beneath, anterior margin of tegulæ, line before, another beneath, scutellum, sometimes a spot or line behind, dot on four anterior coxæ and

trochanters beneath, their knees, tibiæ and tarsi, anterior femora in front, posterior tibiæ and tarsi except tips, sometimes two dots or a line at tip of first abdominal segment, and the second and third more or less all bright yellow; occasionally the base of second and third segments is margined with dull ferruginous, and the apical middle more or less varied with black, sometimes interrupting the yellow on third segment into two spots and in one specimen these are reduced to mere dots and the yellow on second segment interrupted medially by a black line; wings subhyaline; postpetiole aciculated; gastrocoeli large and deep; antennæ more or less pale beneath; posterior femora sometimes pale at base. Length .45—.55 inch.

Hab.—Can., Me., N. Y., Va. This is quite a variable species, closely allied to *comes* which however has a more finely sculptured abdomen.

85. *comes*, Cress. Proc. Ent. Soc. Phil. iii, p. 158, ♂; Trans. Am. Ent. Soc. i, p. 301.

Hab.—Can., Me., N. H., Mass., N. Y., Pa., Va., Ill. This is an extremely variable species but easily recognized by the yellow second and third abdominal segments, which are more or less black *at apex*; in some specimens the third segment is entirely yellow, and the black band on second segment very broad; the postpetiole is always black, rarely with a yellow dot on each side at tip; in the variety *aleatorius* the fourth segment has an interrupted yellow band at base. The metathorax varies from almost entirely yellow to entirely black; the scutellum is always yellow and the legs quite constant in coloration; the mesothorax has sometimes a spot or two short yellow lines on the disc and in one specimen two entire stripes. Some specimens have fuscous wings, these will probably prove to be varieties of *Bronteus*, and a large series of specimens is required to decide whether or not they are both one and the same species. Length ♂ .50—.65 inch.

86. *trizonatus*, Prov. Nat. Can. ix, p. 8, ♂.

Hab.—Canada. This species has a broad yellow band at apex of the three basal segments of the abdomen. It closely resembles *comes*, but the postpetiole is broader, the gastrocoeli are larger and deeper, and the colors on second and third segments are reversed, *i. e.*, black at base and yellow at apex. Length ♂ .55 inch.

87. *munificus*, Cress.

nobilis, Cress. (nec *Wesm.*), Proc. Ent. Soc. Phil. iii, p. 155, ♂.

Hab.—N. Y., Ill. This fine species has the appearance of a large fat specimen of *lætus* which it resembles in color and markings. Length ♂ .65—.75 inch.

88. *lætus*, Brullé, Hym. p. 303; Cress. Trans. Am. Ent. Soc. i, p. 300.
paratus, Say, Bost. Jour. Nat. Hist. i, p. 228, ♂.

Hab.—Can., N. H., Mass., N. Y., N. J., Pa., Del., Md., Va. This is our commonest species. The second, third and fourth segments of abdomen are yellow, more or less broadly banded *at base* with black; the postpetiole is always yellow at tip; occasionally the yellow on fourth segment is interrupted so as to form two spots sometimes reduced to dots, or entirely wanting; the mesothorax has often two short lines or a spot on the disc, and the metathorax varies from almost entirely yellow to entirely black. Length ♂ .60—.65 inch.

89. *mimicus*, Cress. Trans. Am. Ent. Soc. i, p. 300, ♂.

Hab.—Can., Mass., N. Y., Ct. This is smaller than *lætus*, with the abdomen more convex, the postpetiole broader and nearly smooth and the apical segments more or less distinctly fulvous at tip; otherwise it is colored much the same. Length ♂ .45 inch.

90. *zebratus*, Cress. Trans. Am. Ent. Soc. i, p. 299, ♀; iv, p. 156, ♂.

Hab.—Ill., Ga., Tex. This pretty little species has a broad yellow band at apex of all the abdominal segments; face, orbits, line before, wings, spot on disc of mesothorax, scutellums, large mark on sides of pleura, posterior half of metathorax except median black spot behind and most of coxæ, also yellow; legs fulvo-ferruginous; wings tinged with yellowish; the flagellum of antennæ ♀ has a white annulus, that of ♂ is entirely black; coxal scopa ♀ distinct. Length ♂ ♀ .35—.40 inch.

91. *parvus*, Cress. Proc. Ent. Soc. Phil. iii, p. 159, ♂.

Hab.—Mass., N. Y., Va., Ill. This little species is about one-half the size of *lætus*, and is colored almost exactly like that species and seems to be subject to the same variation in color. The mesothorax has sometimes two short lines or a spot on its disc; the metathorax is often more or less varied with yellow and the fourth abdominal segment is sometimes entirely black; the gastrocoeli are deep and well marked. Length ♂ .30—.40 inch.

92. *vescus*, Prov. Nat. Can. ix, p. 9, ♂.

Hab.—Can., N. H., N. Y. This is the same size as *parvus* and resembles that species very much in color, but is at once distinguished by the subobsolete gastrocoeli. It much resembles some well marked specimens of *paratus*, Say. Length ♂ .30—.40 inch.

93. *pomilius*, Prov. Nat. Can. ix, p. 9, ♂.

Hab.—Can., Mass., B. Col. A long, narrow black species with the second, third and fourth segments of abdomen yellow, more or less tinged with fulvous, a broad black band at apex of second and narrow apical margins of third and fourth segments, black; antennæ blackish above, pale beneath; face, tegulæ, scutellum, four anterior coxæ and all the trochanters, yellow; four anterior legs except femora behind, base of posterior tibiæ and of their tibiæ fulvous-yellow; wings clear; a variety from Mass. has the middle of third and fourth segments varied with black. Length ♂ .35—.40 inch.

94. *flavizonatus*, Cress. Proc. Ent. Soc. Phil. iii, p. 156.

multor, Cress. Trans. Am. Ent. Soc. i, p. 299. ♂.

Hab.—Can., N. Y., Del., Va. This is a dull black species, with the face, tegulæ, line before and another beneath, scutellum, two spots on metathorax, legs and apical margins of all the abdominal segments, yellow or yellowish-white; tips of posterior femora and of their tibiæ black; the two spots on metathorax are sometimes mere dots, while in some specimens they are large and confluent; the bands on second and third segments of abdomen are often broad and more or less narrowed in the middle anteriorly, sometimes the fifth segment is immaculate, or with a very narrow interrupted band; occasionally the coxæ are marked with black and the femora all more or less fulvous; antennæ generally blackish above, fulvous beneath; the pale bands on abdomen vary from almost white to fulvous-yellow. One specimen from Virginia, has the markings of the abdomen reduced to a dot on each side of postpetiole, a narrow band at tip of second, third, sixth and seventh segments. A specimen from Canada has the band on second segment reduced to a dot on lateral margins. Length ♂ .55—.63 inch.

This may be the ♂ of *juvundus*.

95. *dictiosus*, n. sp.

♂.—Opaque bright lemon-yellow; middle of vertex and occiput dull ferruginous; antennæ fulvous, scape yellow; middle of prothorax and lateral sutures of mesothorax black, also scutellar region and broad upper and narrow lateral margins of pleura; mesothorax ferruginous with two narrow longitudinal yellow stripes which become confluent on posterior disc where it forms a large spot; pleura dull ferruginous beneath; metathorax tinged with fulvous, its basal suture and spot in central area black; wings hyaline; legs slender; posterior coxæ with a black spot beneath and a ferruginous stain on the outer side at base; four anterior femora more or less fulvous at base above, posterior pair ferruginous, more or less black at tips; posterior tibiæ black at tips, their tarsi dusky; abdomen narrow, very densely sculptured; first segment ferruginous, black at tips, apex of second segment with a broad black band, that of third

with a narrower one, the three following segments broadly black at base, apical segment fulvous; yellow at tip; gastrocoeli small and deep; postpetiole finely aciculated. Length .50 inch.

Hab.—Kansas.

96. **comptus**, Say, Bost. Jour. Nat. Hist. i, p. 229, ♂.

Hab.—Pa., Del., Md., Tex. A slender, gracefully formed species, the abdomen being strongly narrowed to base. The prevailing color is yellow with the vertex, occiput and antennæ except scape beneath, black; mesothorax black, with two central yellow lines, a yellow dot on each side behind the tegulæ; prothorax black, broadly margined with yellow, pleura black, with a large yellow blotch on each side; tegulæ, scutellum and metathorax, yellow, the latter with a broad central black stripe, sometimes interrupted at base; wings pale-yellowish hyaline; legs yellow, posterior coxæ black beneath, their femora and tips of their tibiæ tinged with ferruginous, sometimes the posterior femora are blackish; abdomen very slender at base, gradually widening towards the apex; basal two-thirds of the first segment above, the basal one-half or one-third of the second, third and fourth segments, and the remaining segments except their apical margins, black; sometimes the basal black band on the third segment is quite narrow, while all the others are broad. Length ♂ .50—55 inch.

This may be the ♂ of *atrifrons*.

97. **atrifrons**, Cress. Proc. Ent. Soc. Phil. iii, p. 157, ♀; Trans. Am. Ent. Soc. i, p. 298.

Hab.—Pa., Ill. This species has much the same graceful form as *comptus*, of which it may be the ♀, the abdomen being narrowed and very slender at base; the face is entirely black, the antennæ slender, with a white annulus on flagellum; anterior orbits, two slender stripes on mesothorax, scutellum, two large spots on metathorax, coxæ, and band at tip of all the abdominal segments, yellow; legs fulvo-ferruginous; wings yellowish-hyaline. Length ♀ .50 inch.

98. **inconstans**, Cress. Proc. Ent. Soc. Phil. iii, p. 153, ♂.

Hab.—Colorado. An elongate rather narrow black species with the face, clypeus, scutellum, most of legs, and the second, third and fourth abdominal segments, yellow; the second and third segments more or less varied with fulvous at tip, and the yellow on fourth segment contracted and interrupted medially; the two apical segments are fulvous; wings yellowish-hyaline; posterior coxæ, their femora, and tips of their tibiæ black. Length ♂ .55 inch.

99. *infucatus*, Cress. Proc. Ent. Soc. Phil. iv, p. 252, ♂.

Hab.—Col., Cal., Vancouver's Island. This is a black species, with the face, clypeus, scape beneath, tegulæ, spot before and beneath, scutellum, legs (except coxæ, posterior femora and tips of their tibiæ) tips of first abdominal segment and the three following segments more or less, yellow; one specimen has two yellow spots on metathorax posteriorly; the basal margin of fourth abdominal segment is generally more or less black, occasionally also the base of third and rarely that of second; one specimen has the second and third segments and sides of the face of a beautiful rosy-fulvous color, another specimen has the second, third and fourth segments entirely yellow; apex of abdomen always fulvous; wings smoky-hyaline. Length ♂ $\frac{3}{4}$.45—.55 inch.

This and *inconstans* may prove to be varieties of the same species.

100. *salvus*, Cress. Proc. Cal. Acad. Nat. Sci. 1877.

Hab.—Vancouver's Island. This rather large species is black with the face, clypeus, scape beneath, tegulæ, line in front, scutellum, spot behind, four anterior coxæ and legs, posterior tibiæ and tarsi and second and third abdominal segments yellow; posterior coxæ and femora and third abdominal segment fulvous; posterior margin of second, third and fourth segments narrowly blackish; apex of postpetiole fulvous, yellow laterally; mesothorax has two indistinct dull ferruginous longitudinal lines; wings yellow-hyaline. Length ♂ .65 inch.

101. *subdolosus*, Cress. Trans. Am. Ent. Soc. i, p. 298, ♀.

Hab.—Can., Me., Mass. A very robust species, with short, stout antennæ, the joints of which are short and thick. The vertex, mesothorax, metathorax except flanks, tibiæ, tarsi, postpetiole and apex of abdomen are ferruginous; annulus on flagellum, scutellum and band at apex of second and third segments of abdomen are yellowish, sometimes the postpetiole has a yellow dot on each side; wings fusco-hyaline, with a golden gloss. Length ♀ .55 inch.

102. *jucundus*, Brullé, Hym. p. 305.

Hab.—Can., Me., N. Y., Pa. This handsome species is shaped like *subdolosus*, and is easily recognized by the fulvous second abdominal segment, while the third, fourth and sixth are black with a yellow band at tip; the antennæ are short, thick and tricolored—fulvous-yellow and black, and the legs are fulvous; wings fusco-hyaline. Length ♀ .45—.55 inch.

This may be the ♀ of *flavizonatus*.

103. *zelotypus*, Cress. Trans. Am. Ent. Soc. i, p. 299, ♂.

Hab.—West Virginia. A rather large dull black species with a yellow band on tips of the three basal segments of abdomen, the remaining segments are ferruginous, with a blackish band at base of the fourth, very narrow in one specimen; wings yellow-hyaline. Length ♂ .55—.70 inch.

104. *creperus*, Cress. Trans. Am. Ent. Soc. i, p. 298, ♂.

Hab.—Can., W. Va. This pretty species has the abdomen fulvous with a narrow black band at base of the segments, the postpetiole is always yellow; in all the specimens the metathorax is yellow above, and the posterior coxæ, femora except extreme base and tips of their tibiae are black; one specimen has the abdomen yellow-fulvous. Length ♂ .55—.60 inch.

A specimen from Virginia, and probably a variety of this species, has a narrow dull yellow annulus on flagellum, the posterior femora fulvous, and the tips of second and third abdominal segments yellow; the postpetiole fulvous and yellow, and the cheeks are broadly yellow. Length ♂ .62 inch.

105. *variegatus*, Cress. Proc. Ent. Soc. Phil. iii, p. 153; iv, p. 251, ♂.

Hab.—Col., N. Mex., Cal., Van. A rather slender and extremely variable species, black, with the face, scutellum, metathorax more or less and most of the legs yellow; wings clear; abdomen varied with yellow, ferruginous and black, scarcely any two specimens being colored alike. Length ♂ .45—.60 inch.

For remarks on the variation of this species see Proc. Ent. Soc. Phil. iv, p. 251.

106. *Grotei*, Cress. Proc. Ent. Soc. Phil. iii, p. 154, ♂.

Hab.—Col., Ill. A long, rather narrow species, with the abdomen of three colors—black, fulvous and yellow, the base being black, the middle fulvous, shading into yellow to the tip of the segment; the apical segments lose the bright yellow color and are fulvous and black; the thorax is more or less varied with fulvous both above and beneath; the face and scutellum yellow, and the metathorax almost entirely yellowish-fulvous; the wings are yellowish hyaline and the legs fulvous and yellow. Three specimens from Illinois are of a duller color than those from Colorado. Length ♂ .55—.60 inch.

107. *delicatus*, Cress. Proc. Ent. Soc. Phil. iv, p. 253, ♂.

Hab.—Colorado. A delicate looking species both in shape and color. It is lemon-yellow, with the vertex, occiput, antennæ, spot

on each side of pectus, mesothorax, except two dorsal lines, sides of scutellum, broad sutures of pleura, and the basal middle of abdominal segments four to six, black; the femora and delicate stains on the abdomen fulvous; wings yellowish hyaline, with the nervures pale fulvous. Length ♂ .50 inch.

This may be a very pale variety of *Grotei*.

108. *paratus*, Say, Contrib. Macl. Lyc. i, p. 68, ♂; Cress. (*Ischnus*), Proc. Ent. Soc. Phil. iii, p. 156, ♂.

Hab.—Can., N. Y., Pa., Del., Va. A pretty little species, slender in form and exceedingly variable in its markings. The head is yellowish-white; with the vertex and occiput black; antennæ long, slender, black above, fulvous beneath, with a more or less broad whitish annulus beyond the middle and with the basal joint beneath yellow; thorax black, shining, with the upper and lower margins of prothorax, a spot on disc of mesothorax, sometimes wanting, tegulæ and a line beneath, scutellum, postscutellum, posterior portion of metathorax and a large spot on the thorax beneath between the four anterior legs and extending more or less upon the sides, all yellowish-white; wings clear; four anterior legs, including their coxæ, yellowish-white, posterior coxæ varied with yellowish beneath, their trochanters, base of femora, basal two-thirds of their tibiæ and the apical joints of their tarsi, yellowish-white; abdomen yellowish-white, apical half more or less fulvous, first segment smooth and polished, slender, black above before apex, remaining segments with a black, often irregular, stain on the middle, sometimes forming a regular band, sometimes two spots; these stains become less distinct on the apical segments, which are sometimes entirely fulvous; beneath yellowish, fulvous at tip. Length ♂ .30—.40 inch.

109. *vinnulus*.

Ischnus vinnulus, Cress. Proc. Ent. Soc. Phil. iii, p. 189, ♂.

Hab.—Pa., Va. This may possibly be nothing but a variety of *paratus*; the markings are very similar, but the posterior femora are fulvous and not black, the first segment of the abdomen is black except its tip, and the basal two-thirds of the second and third segments are also black. Length ♂ .40—.45 inch.

110. *Heiligbrodtii*, n. sp.

♂.—Small, black; face, clypeus, orbits, spot on mandibles, scape beneath, annulus on flagellum, line on collar, upper margin of prothorax, spot on tegulæ, short line above, another beneath, two slender lines on disc of mesothorax, scutellum, spot behind, posterior face of metathorax, spot on flanks, spot above middle coxæ, tips of four anterior coxæ, spot on posterior pair above, apical

margin of abdominal segments one to four, that on second deeply emarginate on anterior middle and that on fourth very narrow and interrupted, line on apex of sixth and the seventh entirely, all white; posterior margin of cheeks, sides of prothorax, pleura, sides of metathorax, legs and abdomen, except base of second and third segments, ferruginous; wings hyaline; postpetiole punctured; gastrocoeli rather deep. Length .35 inch.

Hab.—Bastrop, Texas, (L. Heiligbrodt). Allied to *honestus*.

111. *honestus*, Cress. Trans. Am. Ent. Soc. i, p. 310, ♂.

Hab.—W. Va., Ga. A very pretty species easily recognized by the fulvous abdomen, with the first four segments margined at tip with yellowish, and the apical segment entirely yellowish; legs fulvous; head and abdomen black and white; antennæ black above, pale beneath, with broad whitish annulus above; wings hyaline. Length ♂ .42 inch.

112. *milvus*, Cress. Trans. Am. Ent. Soc. i, p. 305, ♂.

Clopinii, Prov. Nat. Can. vii, p. 250, ♂.

Hab.—Can., N. H., Mass. A long, narrow black species with honey-yellow antennæ, scutellum, legs and abdomen, except last three segments which are black; the face and coxæ are pale-yellow and the wings yellowish-hyaline. Length ♂ .65 inch.

113. *volesus*, Cress. Trans. Am. Ent. Soc. i, p. 304, ♀.

Hab.—Massachusetts. A robust black species, with the second and third segments of abdomen entirely ferruginous, and the two apical segments each with a white spot; coxal scopa distinct. Length ♀ .45 inch.

114. *involutus*, Cress. Proc. Ent. Soc. Phil. iii, p. 183, ♀.

Hab.—Colorado. A small shining black species, with the mandibles, scape beneath, legs, scutellum obscurely, and second and third abdominal segments ferruginous; antennæ short and strongly involute; postpetiole punctured on disc; gastrocoeli obsolete; wings subhyaline. Length ♀ .35 inch.

115. *restrictus*, n. sp.

♂.—Black, rather slender, subopaque; face, clypeus, mandibles, palpi, scape beneath, tegule, short line before, another beneath, scutellum, spot on four anterior coxæ beneath, four anterior legs, posterior tibiæ except tips, and their tarsi, yellow; four anterior femora fulvous behind, posterior femora sometimes fulvous within; wings subhyaline; second and third segments of abdomen ferruginous, densely punctured; postpetiole narrow, aciculated; gastrocoeli small and deep. Length .60 inch.

Hab.—New York. This may prove to be an extreme variety of *instabilis*.

116. **Belfragei**, Cress. Trans. Am. Ent. Soc. iv, p. 156, ♂.

Hab.—Texas, (coll. Belfrage). Black; sides of face and of clypeus, dot on tegulæ anteriorly, short line beneath and scutellum, white; wings uniformly pale fuliginous; anterior tibiæ pale in front; abdomen shining, second, third and base of fourth segments yellowish-ferruginous. Length .50 inch.

117. **procax**, n. sp.

♂.—Rather large, opaque deep black, roughly sculptured; face except middle, clypeus, spot on mandibles, spot on scape beneath, tegulæ, spot in front, another beneath, scutellum, dot on outer side of four anterior coxæ, spot on their trochanters, their knees, and tibiæ and tarsi entirely, posterior tibiæ except tips and their tarsi except extreme tips of joints, white or yellowish-white; scutellum gibbous, subangular in profile, the basal excavation very deep; mesothorax coarsely not closely punctured; metathorax roughly sculptured, with coarse elevated lines; wings subhyaline, tinged with yellowish; legs slender; abdomen long, rather narrow, coarsely and longitudinally rugose, second, third and fourth segments dull ferruginous, yellowish beneath, gastrocæli large and deep. Length .65 inch.

Hab.—Canada.

118. **leviculus**, n. sp.

♂.—Black; abdomen except the first and last one or two segments, ferruginous; sides of face and clypeus broadly, spot on mandibles, palpi, orbits, spot on scape beneath, broad annulus on antennæ, upper margins of prothorax, dot on tegulæ, line beneath, scutellum, dot behind, two spots or dots on metathorax behind, four anterior coxæ beneath, spot at tips of posterior pair and narrow posterior margin of postpetiole, white; wings hyaline, slightly dusky at tips; four anterior legs except femora behind pale, base of posterior tibiæ more or less ferruginous; abdomen narrow, finely punctured, postpetiole punctured, gastrocæli deep. Length .40 inch.

Hab.—N. Y., Va. Resembles some of the dark varieties of *duplicatus*.

119. **terminalis**, Cress. Proc. Ent. Soc. Phil. iii, p. 184, ♀.

Hab.—Delaware. A small robust ferruginous species, with head, pro- and mesothorax, most of pleura, tips of posterior femora and of their tibiæ and apex of abdomen, black; annulus on antennæ, scutellum and two spots on apex of abdomen yellowish-white. Length ♀ .30 inch.

This is probably the ♀ of *finitimus*.

120. **finitimus**, Cress. Trans. Am. Ent. Soc. i, p. 304, ♂, (not ♀).

var. *Mesostenus apicalis*, Prov. Nat. Can. vii, p. 266, ♂.

Hab.—Can., N. H., N. Y., Pa., Ill. A small, long, slender species, with black antennæ, head, thorax and tip of abdomen; legs and three or four basal segments of abdomen, and occasionally the metathorax

ferruginous; annulus on flagellum, anterior orbits, clypeus, scutellum, four anterior coxæ and spot at tip of abdomen, white. Length ♂ .30—.37 inch.

This may be the ♂ of *terminalis*.

121. *hospitus*, Cress. Trans. Am. Ent. Soc. i, p. 306, ♂ ♀.

Hab.—Can., Ill. A small black species with legs and three basal segments of abdomen ferruginous, the latter finely punctured and shining; annulus on antennæ, scutellum and face of ♂ yellowish; antennæ ♀ thickened towards tips, base ferruginous, middle whitish, apex black, third joint about twice longer than broad and longer than fourth; antennæ ♂ long, black above, fulvous beneath; tips of posterior femora, and of their tibiæ more or less black; wings subhyaline. Length ♂ ♀ .30 inch.

122. *cervulus*, Prov. Nat. Can. vii, p. 83, ♂.

Hab.—Canada. A small black species with second and third abdominal segments pale ferruginous, and the tibiæ and tarsi more or less yellowish; wings subhyaline; head and antennæ entirely black, the latter short and sometimes pale at tips beneath. Length ♂ .30—.35 inch.

123. *decoratus*, Prov. Nat. Can. vii, p. 83, ♂.

Hab.—Can., Mass. Same size and general appearance of *cervulus*, but has ferruginous legs, and the sides of face and clypeus are white. Length ♂ .30 inch.

124. *lachrymans*, Prov. Nat. Can. vii, p. 78, ♂.

Hab.—Can., N. H. Closely resembles *cervulus* but has the face, clypeus and scutellum yellow; same size.

125. *citrifrons*, Cress. Trans. Am. Ent. Soc. i, p. 307, ♂.

Hab.—Ct., Pa. A small black species, with face, scutellum, and the four anterior coxæ and trochanters pale yellow; the legs including posterior coxæ and second and third abdominal segments yellow ferruginous; apical half of posterior femora and tips of their tibiæ black; antennæ long and fulvous, darker above; wings clear. Length ♂ .26 inch.

126. *limbifrons*, Cress. Proc. Ent. Soc. Phil. iii, p. 182, ♂.

Hab.—Colorado. A small slender black species, with the legs except base, and abdomen except apex, ferruginous; lateral margins of face and dot on each side of clypeus, white; wings clear; post-petiole narrow, punctured, gastrocoeli small, deep, punctiform. Length ♂ .30 inch.

127. *vecors* (*ventralis*, Cress. Trans. Am. Ent. Soc. i, p. 308, ♀.)

Hab.—Hudson's Bay Territory. A small robust black species, with anterior orbits, mouth, scutellum and three basal segments of abdomen, ferruginous; antennæ yellowish ferruginous, black at base and apex, the joints very short and thick-set; legs varied with black and yellowish; wings clear; abdomen convex, base of first and third and lateral basal margin of second segment black. Length ♀ .33 inch.

128. *nigrovariegatus*.

Phygadeuon nigrovariegatus, Prov., Nat. Can. vii, p. 182.

♀.—Small, robust, ferruginous; face, cheeks, thorax especially laterally, and apex of abdomen, varied with black; antennæ short, ferruginous, with short, submoniliform joints, three to five subquadrate, subequal, middle joints paler, apical ones black; scutellum flat; metathorax with indistinct elevated lines; wings tinged with dusky, the areolet broad five-angular; legs short, robust, especially the femora which are swollen, coxæ, four anterior femora behind, posterior pair entirely and tips of their tibiæ, black; abdomen shining, sparsely punctured, postpetiole broad, smooth; gastrocoeli small, shallow. Length .25 inch.

Hab.—Canada, (coll. Provancher).

129. *humilis*, Prov. Nat. Can. vii, p. 82, ♀.

var. *Phygadeuon dorsalis*, Prov. Nat. Can. vi, p. 285, ♀.

Hab.—Canada, (coll. Provancher). This is probably nothing more than a variety of *nigrovariegatus* with less black markings.

130. *tumidifrons*, Cress. Trans. Am. Ent. Soc. i, p. 311, ♀.

Hab.—Illinois. A very small ferruginous species with short protuberant face; head, apex of antennæ, metathorax, tips of posterior femora and tibiæ, and apex of abdomen black; annulus on flagellum, scutellum and spot on tip of abdomen white. Length ♀ .20 inch.

131. *seditiosus*, n. sp.

♀.—Subrobust, black; antennæ except apex and scape beneath, mandibles, mesothorax, scutellum, tegulæ, legs except coxæ and trochanters, and three basal segments of abdomen, ferruginous; wings fusco-hyaline; antennæ robust; legs slender; abdomen broadly fusiform, densely punctured, postpetiole broad, aciculated, gastrocoeli large and deep, apical segments smooth and shining. Length .50 inch.

Hab.—Colorado, (B. H. Smith).

132. *indemnis*, Cress. Proc. Cal. Acad. Nat. Sci. 1877.

Hab.—British Columbia. A ferruginous species with the thoracic sutures, tips of posterior femora and of their tibiæ, apical margins of abdominal segments two to four, and the remaining segments entirely, black. Length ♂ .40 inch.

133. *caudatus*, Prov., Nat. Can. vii, p. 82 ♀.

Phygadeuon terminalis, Prov. Nat. Can. vi, p. 284, ♀.

Hab.—Can., Mass. A subrobust ferruginous species, with posterior femora, tips of their tibiæ, and fourth and following segments of abdomen black; scutellum and two spots on tip of abdomen whitish; antennæ long and slender. Length ♀ .43 inch.

134. *putus*, n. sp.

♀.—Small, pale ferruginous, finely punctured, rather shining; antennæ slender, apical third fuscous, third and fourth joints subequal in length, the third being little the longer; posterior femora except base, tips of their tibiæ and the fifth and following segments of abdomen black; wings hyaline; legs slender; abdomen depressed, second and third segments closely and uniformly punctured, postpetiole and apical segments smooth and shining, gastrocoeli small and deep; apical margins of two apical segments whitish. Length .35 inch.

Hab.—Connecticut.

135. *grandis*, Brullé, Hym. p. 300.

regnatricis, Cress. Proc. Ent. Soc. Phil. iii, p. 178, ♀.

ambiguus, Cress. Proc. Ent. Soc. Phil. iii, p. 161, ♂.

Hab.—Can., Mass., N. Y., Pa., Del., Ga., Col., Van. This is our largest species; it is of a deep black color, with the abdomen except first segment ferruginous, and the wings dark fuliginous and violaceous. The scutellum has sometimes a white spot, and the postpetiole is occasionally ferruginous. The ♂ has the face, clypeus, spot on mandibles, scape beneath, short line before tegulæ, dot beneath, generally a spot on scutellum and the anterior legs in front, white. The ♀ has a white annulus on flagellum, and the coxal scopa is distinct. Length ♂ ♀ .70—1 inch.

136. *inurbanus*, Cress. Trans. Am. Ent. Soc. i, p. 302, ♀.

Hab.—W. Va., Col. A miniature of *grandis*, but more shining and less strongly sculptured; the postpetiole is finely aciculated; the gastrocoeli rather small and the second segment evenly and not confluent punctured; the posterior coxæ are nude beneath. Length ♀ .55 inch.

137. *rufiventris*, Brullé, Hym. p. 301.

var. *incertus*, Cress. Proc. Ent. Soc. Phil. iii, p. 180, ♀.

semicoccineus, Cress. Proc. Ent. Soc. Phil. iii, p. 179, ♂.

var. *californicus*, Cress. Proc. Ent. Soc. Phil. iii, p. 180, ♂.

Hab.—Can., Mass., Pa., N. J., Del., Md., Va., Ill., Cal. Much smaller than *grandis*, the ♀ with slender antennæ, broadly fusiform abdomen and posterior coxæ nude beneath. A ♀ specimen from Ill.

has a pale spot on the scutellum, and a ♂ from Can. has the last two segments of abdomen black. The ♀ var. *incertus* has the legs, except coxæ and trochanters, ferruginous. The ♂ var. *californicus* has dark brown abdomen and ferruginous legs. Length ♂ ♀ .50—.70 inch.

This species has been found to be parasitic on *Vanessa Hunteri*.

138. *placidus*, Prov. Nat. Can. vii, p. 76, ♂.

Hab.—Canada, (coll. Provancher). Size and appearance of *rufiventris*, ♂. Black; abdomen dark ferruginous beyond first segment; face, clypeus, scape beneath, short line before tegulæ, dot beneath, spot on disc of scutellum, four anterior coxæ and trochanters beneath more or less, anterior tibiæ and femora before, and tips of middle femora before, white; wings violaceous-black; metathorax rugose, with sharply elevated lines, central area subreniform, large; postpetiole large, broad, coarsely rugose; gastrocoeli large and deep, black. Length .65 inch.

139. *devinctor*, Say, Am. Ent. pl. 22.

tibialis, Brullé, Hym. p. 300.

montivagus, Cress. Proc. Ent. Soc. Phil. iv, p. 255, ♂.

Hab.—Can., Pa., Del., Md., Ga., Ill., Col. A rather large species with red abdomen, pale scutellum, and white annulus on tibiæ and antennæ ♀. The ♂ closely resembles that of *grandis*, but separated at once by the scape being entirely black and by the white spot on posterior tibiæ near base. Length ♂ ♀ .55—.80 inch.

140. *lividulus*, Prov. Nat. Can. ix, p. 10, ♀.

Hab.—Canada. A robust species near *rufiventris*, but differs from that species by the conspicuous whitish scutellum, shorter and stouter antennæ, paler wings, and ferruginous tibiæ and tarsi. Length ♀ .65 inch.

141. *insolens*, Cress. Trans. Am. Ent. Soc. i, p. 302, ♂ ♀.

Joppa canadensis, Prov. Nat. Can. vi, p. 336, ♂.

Hab.—Can., N. C., Ga., Fla., La., Tex. A narrow, subcylindrical black species, with posterior femora and abdomen dark ferruginous, blackish wings and white annulus on antennæ. Length ♂ ♀ .55—.65 inch.

This may be the *Joppa maurator*, Brullé, Hym. p. 287.

142. *succinctus*, Brullé, Hym. p. 301.

Hab.—Can., N. Y., Pa., Md., Ill., La. This species is easily recognized by the ferruginous abdomen banded with black, pale scutellum, yellow tibiæ and tarsi and blackish wings; the black bands on abdomen very much in width. Length ♂ .60—.65 inch.

143. *dorsalis*, Cress. Proc. Ent. Soc. Phil. iii, p. 177, ♀.

Hab.—Colorado. A robust black species with clypeus, mesothorax, scutellum and abdomen ferruginous; wings fuscous; postpetiole broad and aciculated; gastrocoeli moderately large and deep. Length ♀ .55 inch.

144. *Lewisii*, Cress. Proc. Ent. Soc. Phil. iii, p. 177, ♀; Trans. Am. Ent. Soc. i, p. 307.

var. *sandix*, Cress. Proc. Ent. Soc. Phil. iii, p. 174, ♀.

Hab.—N. Y., Va., Ga., Ill. A dark winged ferruginous species, with the pleura, metathorax, coxæ, and generally a band at base of third abdominal segment, black; the antennæ are slender and tri-colored—ferruginous at base, broadly yellow medially and black at tip; sometimes the thorax is entirely black except two stripes on mesothorax and scutellum; the var. *sandix* has the thorax above and abdomen entirely ferruginous. Length ♀ .55 inch.

145. *purpuripennis*, Cress. Proc. Cal. Acad. 1877.

Hab.—California. A rather stout ferruginous species with fusco-violaceous wings; antennæ short, stout, with apical half or two-thirds black; the basal margin of abdominal segments three and four are sometimes narrowly black. Length ♀ .50 inch.

146. *cupitus*, Cress. Proc. Cal. Acad. 1877.

Hab.—California. This is probably the ♂ of *purpuripennis*; color entirely ferruginous with antennæ except scape beneath, and sutures of thorax more or less, black; wings fuscous; face yellowish. Length ♂ .55 inch.

147. *compar*, Cress. Proc. Cal. Acad. 1877.

Hab.—Vancouver's Island. An elongate robust ferruginous species, with fuscous wings: antennæ stout ferruginous, paler medially and black at tips; closely allied to *purpuripennis*, but more elongate and differently shaped. Length ♀ .52 inch.

148. *crudosus*, Cress. Proc. Cal. Acad. 1877.

Hab.—California. An elongate ferruginous species, with blackish wings, black head and thorax beneath; face yellow; legs entirely ferruginous. Length ♂ .65 inch.

149. *trogiformis*, Cress. Proc. Ent. Soc. Phil. iii, p. 175, ♂; Trans. Am. Ent. Soc. i, p. 307, ♀.

Hab.—N. J., Ga., Fla., La., Tex. Easily recognized by the ferruginous body, broad blackish wings, unusually large head and strongly constricted abdominal segments; the metathorax, pleura and posterior

legs are sometimes more or less varied with black; the antennæ have a yellowish annulus in both sexes, sometimes indistinct; coxal scopa ♀ distinct. Length ♂ ♀ .40—.50 inch.

This may be the *Joppa ferrugator* (Fabr.) Brullé, Hym. p. 295.

150. *difficilis*, Cress. Proc. Cal. Acad. 1877.

Hab.—Van., Cal. A ferruginous species, with head, antennæ, thorax more or less, coxæ, tips of posterior tibiæ and basal margin of abdominal segments three to five, black; face yellow; wings dusky; mesothorax, scutellum and metathorax more or less ferruginous; first segment of abdomen entirely ferruginous. Length ♂ .60 inch.

151. *animosus*, Cress. Proc. Ent. Soc. Phil. iii, p. 164, ♂.

var. *rubellus*, Cress. Proc. Ent. Soc. Phil. iv, p. 254, ♂.

Hab.—Col., N. Mex. A slender black species, with face, clypeus, scape beneath, tegulæ, scutellum, four anterior legs, basal half of posterior tibiæ and their tarsi yellow; wings clear; abdomen ferruginous, with first segment entirely and base of remaining segments more or less black. The var. *rubellus* has paler abdomen and the metathorax is more or less yellow behind. Length ♂ .50 inch.

152. *discus*, Cress. Proc. Ent. Soc. Phil. iii, p. 168, ♂.

Hab.—Colorado. Closely allied to *animosus*, but the legs, except coxæ and trochanters, are entirely yellowish-ferruginous; the mesothorax is more or less dull ferruginous; the second and following abdominal segments are narrowly black at base. Length ♂ .50 inch.

153. *allapsus*, Cress. Proc. Ent. Soc. Phil. iv, p. 256, ♂.

Hab.—Colorado. A black species, with the abdomen entirely dull ferruginous, except the first segment which is black; wings clear; face, clypeus, scape beneath, tegulæ, scutellum, sometimes two spots on metathorax behind, four anterior legs, posterior tibiæ except tips, their tarsi and ventral fold, bright lemon-yellow. Length ♂ .55—.60 inch.

154. *vinulentus*, Cress. Proc. Ent. Soc. Phil. iii, p. 162, ♂.

Hab.—Colorado. Larger than *allapsus* which it closely resembles, but differs principally by the pale markings being white instead of lemon-yellow, and by all the coxæ being black. Length ♂ .65—.70 inch.

155. *nunciatus*, Cress. Proc. Cal. Acad. 1877.

Hab.—California. Resembles *allapsus*, but the abdomen is paler in color; the posterior femora and tibiæ except tips and apex of postpetiole, are ferruginous; apex of metathorax, scutellum, face, and

four anterior coxæ and trochanters are lemon-yellow; wings clear. Length ♂ .55 inch.

156. *virginicus*, Cress. Proc. Ent. Soc. Phil. iii, p. 181, ♀.

Hab.—West Virginia. A medium sized, robust black species, with short ferruginous abdomen and clear wings; antennæ short, stout, with white annulus; legs robust, short, posterior tibiæ reddish at base; head and thorax immaculate. Length ♀ .50 inch.

157. *vultus*, Cress. Proc. Ent. Soc. Phil. iii, p. 165, ♂.

Hab.—Colorado. A small slender black species, with ferruginous abdomen and legs; face and apex of scutellum yellow; wings clear. Length ♂ .35 inch.

158. *Saundersii*, n. sp.

♂.—Black; anterior orbits broad on face, and sides of elypeus, white; antennæ black above with a narrow indistinct pale annulus, beneath fulvous black at extreme base and apex; thorax immaculate, shining; most of tegulæ, dot in front and short line beneath whitish; wings hyaline, iridescent; spot on four anterior coxæ beneath and their knees, tibiæ and tarsi more or less yellow, base of posterior tibiæ and of their tarsal joints dull ferruginous; abdomen ferruginous, finely punctured, first segment except postpetiole black, the latter punctured; gastrocoeli moderately large and deep. Length .35 inch.

Hab.—Canada. (Mr. William Saunders).

159. *canadensis*, Cress. Trans. Am. Ent. Soc. i, p. 308, ♀.

Hab.—Canada. A robust black species, with ferruginous abdomen, the third and fourth segments of which are black at base; the tibiæ are yellowish-white, black at tips, also scutellum and annulus on antennæ; wings subhyaline; antennæ with short stout joints. Length ♀ .43 inch.

160. *instabilis*, Cress. Trans. Am. Ent. Soc. i, p. 303, ♂ ♀.

Hab.—Can., Me., Mass., Ct., N. Y., N. J., Va., Ga., Col. A very variable species with the thorax, except scutellum, sometimes entirely black, sometimes with the mesothorax, and metathorax more or less ferruginous; the abdomen is often entirely ferruginous, sometimes more or less black at tip; the antennæ are slender, that of ♀ with a broad pale annulus. Length ♂ ♀ .50 inch. For notes on variation, see original description.

161. *fuscifrons*, Cress. Proc. Ent. Soc. Phil. iii, p. 166, ♀; Trans. Am. Ent. Soc. i, p. 307.

Hab.—N. Y., Ill. Form slender, ferruginous, head and thorax more or less black or fuscous; scutellum pale yellowish; antennæ slender, with pale annulus; wings clear; a spot at tip of abdomen,

sometimes a dot on each side of postpetiole and occasionally a spot on each side of third segment yellow; legs ferruginous. Length ♀ .50 inch.

162. *confirmatus*, n. sp.

♀.—Slender, fulvo-ferruginous; head, antennæ, pro- and mesothorax and lateral regions of scutellum, black; face, orbits, margins of prothorax, and scutellum, whitish; wings hyaline; antennæ slender, basal joints of flagellum elongate; legs slender; abdomen narrowly fusiform, gastrocoeli large, oblique. Length .37—.45 inch.

Hab.—Can., Mass., N. Y.

163. *velox*, Cress. Proc. Ent. Soc. Phil. iii, p. 185, ♀.

Phygadeuon apicatus, Prov. Nat. Can. vii, p. 180, ♀.

Phygadeuon Cressoni, Prov. Nat. Can. viii, p. 318, ♀.

Hab.—Can., Pa., N. J., Ill. A ferruginous species, with pleura and metathorax black; wings clear; apex of abdomen with yellowish spot, gastrocoeli very transverse, nearly meeting on the disc; antennæ black, with broad pale annulus; posterior femora more or less black. Length ♀ .30—.40 inch.

164. *ultimus*, n. sp.

♀.—Small, black, shining; face short; anterior orbits, spot on middle of face, clypeus and scape beneath dull ferruginous; antennæ with moderately short basal joints, a broad yellowish annulus on flagellum; mesothorax sparsely punctured; scutellum flat, yellow; wings subhyaline; legs robust, especially the femora, black, basal half of tibiæ yellow, tarsi ferruginous; abdomen except base of first segment ferruginous, a yellow spot on apical segment, postpetiole broad, smooth. Length .35—.40 inch.

Hab.—White Mts., N. H. (Morrison).

165. *vivax*, n. sp.

♀.—Small, rather robust, head and thorax, except scutellum, black immaculate; antennæ slender, black, with a broad yellowish annulus; scutellum pale yellow; wings subhyaline; legs subrobust, black, four anterior knees, tibiæ, posterior tibiæ except tips, and all the tarsi ferruginous; abdomen robust, ferruginous, first segment black, a whitish spot on two apical segments. Length .30 inch.

Hab.—White Mts., N. H. (Morrison).

166. *vafer*, n. sp.

♂.—Small, black; anterior orbits broader on face, spot on each side of clypeus, mandibles, narrow annulus on antennæ, spot on tegulæ, line before, short one beneath, scutellum and spot on anterior coxæ beneath, white; femora and abdomen except base of first segment, ferruginous; wings hyaline; antennæ about as long as the body, slender; base of first abdominal segment rugose, gastrocoeli large, deep. Length .30 inch.

Hab.—White Mts., N. H. (Morrison).

167. *lascivus*, Cress. Trans. Am. Ent. Soc. i, p. 309, ♂.

Hab.—Illinois. A very distinct and prettily marked species; black with head and thorax elaborately ornamented with white; legs and abdomen ferruginous, the latter with first and second segments black and a white spot on each apical corner of four basal segments; coxæ mostly white; antennæ long and slender with white annulus; mesothorax with two white stripes; wings clear, etc. Length ♂ .38 inch.

168. *funestus*, Cress. Proc. Ent. Soc. Phil. iii, p. 166, ♀.

hesitans, Prov. Nat. Can. vii, p. 80, ♀.

Hab.—Can., N. H., Mass., Pa., Va., Ill. A robust, medium sized species, with head and thorax more or less black, abdomen ferruginous, scutellum yellowish, whitish annulus on antennæ, clear or subhyaline wings, black legs with tibiæ except tips and tarsi ferruginous; antennæ stout, with thick-set joints. One specimen from Ill. has a small yellow spot on each side of second abdominal segment. The head is sometimes entirely ferruginous, but generally, the occiput is black; the mesothorax is often varied with ferruginous. Length ♀ .37—
.47 inch.

169. *maius*, Cress. Trans. Am. Ent. Soc. i, p. 307, ♀.

Hab.—Mass., N. C. Very near *funestus*, but with more slender antennæ and a whitish spot at tip of abdomen. Length ♀ .36 inch.

170. *W.-album*, Cress. Trans. Am. Ent. Soc. i, p. 309, ♂ ♀.

Ischnus W.-album, Cress. Proc. Ent. Soc. Phil. iii, p. 191, ♂.

Ischnus variegatus, Prov. Nat. Can. vii, p. 250, ♂.

Hab.—Can., N. H., Mass. The ♀ of this species is elongate, robust, black antennæ, head and thorax, and ferruginous legs and abdomen; spots on face and clypeus, orbits, annulus on antennæ, collar, upper margins of prothorax, sometimes a spot on disc of mesothorax, scutellum and a W-shaped mark on metathorax, sometimes reduced to two spots or entirely wanting, white; wings clear; postpetiole smooth, gastrocoeli subobsolete. Length .50—.55 inch.

The ♂ is long and slender with abdomen and legs fulvous; head except vertex and occiput, scape beneath, collar, upper margins of prothorax, spot on disc of mesothorax, scutellum, spot behind, tegulæ, line beneath, pleura more or less, a W-shaped mark on metathorax, coxæ and trochanters and tip and sides of first abdominal segment, all white or yellowish-white; antennæ long, black above with broad pale annulus, beneath more or less yellowish; first abdominal segment except tip and sides black, remaining segments more or less varied with

fuscous or black, sometimes entirely fulvous; the clypeus is concave and sides of the face depressed. Length .65—.70 inch.

171. *duplicatus*, Say, Bost. Jour. Nat. Hist. i, p. 230; Cress. Trans. Am. Ent. Soc. i, p. 309.

lobatus, Prov. Nat. Can. vii, p. 77, ♂.

Hab.—Can., N. H., Mass., N. Y., Ct., Pa., Del., Va., Ga. This seems very closely allied to *W-album* ♂, which is however larger, with broader head and has the *clypeus concave*; the abdomen of *duplicatus* is never varied with black or fuscous beyond first segment; the posterior legs are sometimes entirely black except base of tibiæ which is yellowish. Length ♂ .45—.53 inch.

This is probably the ♂ of *funestus*.

172. *annulatus*.

Mesostenus annulatus, Prov. Nat. Can. vii, p. 265, ♂.

Hab.—Can., Mass. A slender species with black head and thorax, and ferruginous legs and abdomen; face scutellum and annulus on posterior tibiæ pale yellowish; tips of posterior femora, remainder of their tibiæ and their tarsi black; antennæ black above with narrow pale annulus, beneath fulvous; wings subhyaline; abdomen sometimes fuscous at tip, second segment sparsely punctured and subdepressed at base, gastrocoeli obsolete, first segment black, ferruginous at tip. Length ♂ .45 inch.

This is closely allied to *duplicatus*.

173. *signatipes*, Cress. Trans. Am. Ent. Soc. i, p. 308, ♀.

Hab.—Can., N. H., Mass., Pa. A robust ferruginous species, with head and thorax more or less black; annulus on antennæ, scutellum and annulus on tibiæ yellowish; wings subhyaline; tips of posterior femora and tips of tibiæ black, femora robust; antennæ with short thick-set joints. Length ♀ .40—.45 inch.

174. *annulipes*, Cress. Proc. Ent. Soc. Phil. iii, p. 170, ♀.

pusillus, Cress. id. p. 171, ♀.

Hab.—Can., N. H., Mass., Del., Va. A miniature of *signatipes* with the basal joints of flagellum more elongate; *pusillus* is nothing but a pale variety. Length ♀ .20—.30 inch.

175. *scitulus*, Cress. Trans. Am. Ent. Soc. i, p. 310.

Ichnus scitulus, Cress. Proc. Ent. Soc. Phil. iii, p. 193, ♂.

Hab.—Can., N. H., Mass., Ct., N. Y., Va., Ill. A small and variable species, with black head and thorax, and fulvous or honey-yellow abdomen sometimes more or less varied with dusky; mesothorax often

ferruginous; face, orbits, scutellum, pleura, generally two spots on metathorax behind, and legs except posterior femora and tips of their tibiæ, pale yellowish; antennæ long, black above, with more or less distinct pale annulus, beneath pale. Length ♂ .25—.35 inch.

176. *libens*, n. sp.

♂.—Small, shining, fulvo-ferruginous, vertex, occiput, pro- and mesothorax black; antennæ blackish above, fulvous beneath; head beneath antennæ, orbits broad on cheeks, collar, margins of prothorax, sometimes two short lines on disc of mesothorax, tegulæ, line beneath, scutellums, most of pleura, two spots on metathorax behind and all the coxæ, white or yellowish-white; wings hyaline, iridescent; mesothorax sometimes more or less black. Length .25—.30 inch.

Hab.—N. Y., N. J., Ill.

177. *seminiger*, Cress. Proc. Ent. Soc. Phil. iii, p. 167, ♀.

Hab.—Can., Mass., N. Y., N. J., Pa., Va., Ill. A robust ferruginous species, with metathorax, pleura and basal margin of abdominal segments three and four more or less black; antennæ robust, with pale annulus; scutellum yellowish; wings pale fusco-hyaline; legs ferruginous with coxæ, trochanters and sometimes tips of posterior femora within, black. Length ♀ .45 inch.

178. *flebilis*, n. sp.

♀.—Subrobust, dull ferruginous; pleura, flanks of metathorax, and posterior coxæ and trochanters, black; antennæ rather slender, with white annulus, basal joints of flagellum elongate, first joint of which is much longer than second, before annulus the joints are ferruginous, beyond black; mesothorax and scutellum shining, finely punctured; wings subhyaline; legs slender, tips of posterior tibiæ and their tarsi dusky; abdomen with second and third segments closely punctured, apical segments smooth and polished, postpetiole aciculated, gastrocoeli small, moderately deep. Length .47 inch.

Hab.—Canada.

179. *sequax*, Cress. Proc. Cal. Acad. 1877.

Hab.—Vancouver's Island. Resembles *flebilis*, but the flagellum is entirely black. Length ♀ .47 inch.

180. *hiemalus*, Cress. Proc. Cal. Acad. 1877.

Hab.—Aleutian Islands. A small ferruginous species with black metathorax and pleura; antennæ pale ferruginous, apical joints black; wings subhyaline. Length ♀ .30 inch.

181. *subfulvus*, Cress. Proc. Ent. Soc. Phil. iv, p. 258, ♀.

Hab.—Colorado. A rather small, pale ferruginous, shining species with long and slender antennæ, strongly attenuated at tips; apical margins of abdominal segments two to five narrowly black; wings subhyaline. Length ♀ .35—.40 inch.

182. *cestus*, Cress. Proc. Cal. Acad. 1877.

Hab.—Vancouver's Island. A subrobust ferruginous species with broad black band at base of third abdominal segment; antennæ dusky at tips; wings yellowish, subfasciate with fuscous before stigma. Length ♀ .40 inch.

183. *vicinus*, Cress. Proc. Ent. Soc. Phil. iii, p. 169, ♀.

Hab.—Illinois. A subrobust ferruginous species, with tips of antennæ, tips of posterior femora and of their tibiæ, and narrow basal margin of abdominal segments three and four, black; scutellum yellowish; antennæ short, with white annulus, basal joints ferruginous, joints beyond annulus subdiluted; wings subhyaline. Length ♀ .40 inch.

184. *brevipennis*, Cress. Proc. Ent. Soc. Phil. iii, p. 174, ♀.

var. *obsoletus*, Riley, 9th. Mo. Rep. p. 55.

Hab.—Can., Pa., Col. A short robust dull ferruginous species, with dusky wings and basal margins of abdominal segments narrowly black; antennæ robust with short thick-set joints, apex dusky or black; the type from Colorado has shortened wings, and in the variety *obsoletus* the black bands on abdomen are obsolete. Length ♀ .40—.45 inch.

This is a parasite on *Leucania albilinea*.

185. *longulus*, Cress. Proc. Ent. Soc. Phil. iii, p. 171, ♂.

Hab.—Can., Col., N. Mex., Cal., Van. An elongate fulvo-ferruginous species, with antennæ, sutures of thorax, generally the pleura beneath, tips of posterior tibiæ, and basal margin of abdominal segments, more or less black; wings yellowish-hyaline; face, scape beneath, scutellum and legs in front yellowish; postpetiole minutely aciculated, gastrocoeli rather deep. Length ♂ .50—.60 inch.

186. *volens*.

Ischnus volens, Cress. Proc. Ent. Soc. Phil. iii, p. 192, ♂.

Hab.—Can., N. Y., Va., Ga., Ill. Closely resembles *longulus*, but separated at once by the smooth polished postpetiole and subobsolete gastrocoeli; the antennæ are dusky above and pale beneath, with a more or less distinct pale yellowish annulus; the four anterior coxæ and trochanters are whitish; wings hyaline. Length ♂ .55—.60 inch.

187. *propitius*, Cress. Trans. Am. Ent. Soc. iv, p. 156, ♂.

Hab.—Texas, (coll. Belfrage). Yellowish-ferruginous; face, clypeus, anterior orbits and mandibles, pale yellow; antennæ pale ferruginous

beneath, blackish above, with broad yellowish-white annulus above middle; prothorax blackish anteriorly, the anterior margin pale yellow; margins and sutures of thorax blackish, as well as scutellar region and pleura centrally beneath; scutellum yellow; metathorax blackish at tip; wings hyaline; four anterior coxæ yellowish beneath; apices of posterior pair, tips of their femora, apical half of their tibiæ and tips of their tarsi black, basal half of their tibiæ yellow; abdomen opaque, base of first segment and apical margins of second and third segments black and shining. Length ♂ .30 inch.

188. *disparilis*, Cress. Trans. Am. Ent. Soc. i, p. 307, ♀.

Hab.—Connecticut. Dull ferruginous, with antennæ, tips of posterior femora, and disc of second and third abdominal segments black; abdomen short, robust, with pale annulus, the joints beyond strongly compressed and dilated; orbits, scutellum and four anterior coxæ whitish; wings clear; abdomen strongly narrowed to base, closely punctured. Length ♀ .43 inch.

189. *russatus*, Cress. Proc. Cal. Acad. 1877, ♀.

Hab.—Vancouver's Island. Entirely ferruginous, except sutures of thorax and tips of antennæ which are blackish; joints of antennæ short and thick-set; wings subhyaline; three basal segments of abdomen very densely sculptured, postpetiole flat. Length ♀ .40 inch.

190. *semmissis*, Cress. Proc. Cal. Acad. 1877, ♀.

Hab.—California. Entirely ferruginous, with slender antennæ and yellowish wings. Length ♀ .45 inch.

191. *scibilis*, n. sp.

♂.—Elongate, narrow, subcylindrical, ferruginous, thorax shining; face, clypeus, scape beneath, tegulæ, scutellum, and four anterior coxæ and trochanters yellow; antennæ slender, dusky at tips; sutures of thorax, pleura beneath, lateral regions of scutellum, and tips of posterior femora and of their tibiæ, black; wings subhyaline; legs slender; postpetiole narrow, shining, very minutely aciculated, gastrocoeli subobsolete. Length .45 inch.

Hab.—Illinois.

192. *mucronatus*, Prov. Nat. Can. vii, p. 81, ♂.

Hab.—Can., Va. A rather small, pale ferruginous species, with subclavate abdomen, and easily recognized by the two acute spines on metathorax; the antennæ above, lateral regions of scutellum, posterior trochanters, extreme tips of their femora, tips of their tibiæ, and their tarsi, black; face, clypeus, annulus on antennæ, scutellum and four anterior coxæ and trochanters, pale yellow; wings clear; abdomen finely not closely punctured, slender at base, postpetiole narrow, polished, gastrocoeli obsolete. Length ♂ .40—.45 inch.

193. *proximus*.

Phygadeuon proximus, Prov. Nat. Can. vi, p. 283, ♀.

Hab.—Can., N. H. A small ferruginous species, with yellowish scutellum and spot on tip of abdomen; antennæ robust, black, with pale annulus; abdomen smooth and *impunctured*; wings subhyaline; legs robust, posterior femora and tips of their tibiæ, also sutures of thorax, black. Length ♀ .35 inch.

194. *nanus*, n. sp.

♀.—Small, subrobust, ferruginous, back of head and thorax more or less varied with black; antennæ stout, with short thick-set joints, black, with white annulus, the joints beyond middle thickened; line on collar, tegulæ, sometimes a spot in front and line beneath, four anterior coxæ and all the trochanters, pale yellowish; wings hyaline; legs robust, tips of posterior femora more or less, tips of their tibiæ and sometimes their coxæ above, black; occasionally the posterior femora are entirely black, the tibiæ and tarsi are yellowish-ferruginous; abdomen entirely ferruginous, postpetiole indistinctly sculptured. Length .25 inch.

Hab.—Can., N. Y., N. J., Va., N. C., Ill. This is one of our smallest species, nearly allied to *annulipes*; the thorax varies much in color.

195. *rubicundus*, Cress. Proc. Ent. Soc. Phil. iii, p. 176, ♀.

Hab.—Can., Ill., Tex. A small, subrobust, opaque ferruginous species, with the mesothorax and second abdominal segment strongly punctured; wings subhyaline; antennæ of ♀ with a whitish annulus, that of ♂ entirely ferruginous; abdomen densely sculptured; the lateral angles of metathorax are prominent spiniform, quite acute in the ♂. Length ♂ ♀ .30—.33 inch.

196. *residuus*, Say, Contrib. Macl. Lyc. i, p. 73.

Hab.—Mass., Pa., Md. A small robust pale ferruginous species, with clear wings, readily recognized by the broad, very short clypeus the apical margin of which is broadly arcuated, exposing most of the mentum; the antennæ are short, with thick-set joints, middle joints yellowish and apical ones blackish; legs short and robust; abdomen short, finely punctured, gastrocoeli obsolete, postpetiole sparsely punctured. Length ♀ .30 inch.

197. *facetus*, Cress. Trans. Am. Ent. Soc. i, p. 311, ♂.

Hab.—W. Va., Ill. A small slender pale fulvous species, with the vertex, occiput, antennæ and mesothorax more or less, black; remainder of head, broad annulus on antennæ, most of prothorax, scutellum, pleura and four anterior coxæ and trochanters, white; antennæ long, pale at base beneath; wings hyaline, iridescent; post-

petiole smooth and polished, gastrocoeli obsolete; the mesothorax is generally mostly fulvous. Length ♂ .32—.36 inch.

198. *soror*, Cress. Proc. Ent. Soc. Phil. iii, p. 185, ♀.

Hab.—Can., Mass., N. Y., Ill. Same size and color as *residuus*, but with the clypeus of usual shape, the apical margin not arcuated, and the apical segment of the abdomen has a more or less distinct yellow spot.

199. *utilis*, Cress. Trans. Am. Ent. Soc. i, p. 311, ♂.

Hab.—Mass., Ct., N. Y. This is a small fulvous species, with short broad face, orbits, tegulæ, line before, scutellum and four anterior coxæ and trochanters, pale yellow; antennæ fuscous above, without pale annulus; wings clear, iridescent. Length ♂ .30—.35 inch.

This is probably the ♂ of *soror*.

200. *petulcus*, Cress. Proc. Cal. Acad. 1877, ♀.

Hab.—California. Closely allied to *soror* but with the antennæ entirely ferruginous, and the apical segment of abdomen without yellowish spot. Length ♀ .26 inch.

201. ? *rutilus*, Cress. Proc. Ent. Soc. Phil. iii, p. 169, ♀.

Hab.—Virginia. A ferruginous species, the antennæ long, slender, black, with white annulus on flagellum; mouth, sutures of thorax, scutellar region, tips of posterior tibiæ and base of their tarsi black, remainder of their tarsi and scutellum white; wings clear; metathorax with two prominent tubercles. Length ♀ .42 inch.

This looks much like a *Cryptus* the ovipositor being longer than is usual in *Ichneumon*; it seems intermediate between the latter and *Hoplismenus*.

HOPLISMENUS, Grav.

Body black, immaculate.

Legs black and yellow.

Posterior tibiæ fuscous.....1. **flavitarsis**.

Posterior tibiæ and tarsi entirely bright yellow.2. **morulus**.

Legs fulvous or ferruginous.....3. **pacificus**.

Body black; segments 1—3 of abdomen and femora ferruginous; scutellum and tarsi white.....4. **scutellatus**.

1. **flavitarsis**.

Trogus flavitarsis, Cress. Proc. Ent. Soc. Phil. iv, p. 264, ♂.

Hab.—Colorado. Slender, black; face, clypeus and tips of tarsi white; four anterior tibiæ and base of tarsi yellowish; four anterior femora, posterior tibiæ and basal joint of their tarsi fuscous; wings uniformly fuliginous. Length ♂ .53 inch.

2. *morulus*.

Ichneumon morulus, Say, Contrib. Macl. Lyc. i, p. 73.

Ichneumon calcaratus, Prov. Nat. Can. vii, p. 49, ♂.

Hab.—Can., Ct., N. Y., N. J., Va. Black; face, clypeus, scape beneath, and sometimes spot on scutellum ♂, and annulus on flagellum ♀, white or pale yellowish; tibiæ and tarsi bright yellow; wings uniformly fuliginous. Length ♂ ♀ .60—.65 inch.

3. *pacificus*, Cress. Proc. Cal. Acad. Nat. Sci. 1877.

Hab.—Vancouver's Island. Black; annulus on flagellum ♀, and sides of face ♂, white; clypeus and scape beneath ♂, and legs ♂ ♀, fulvous; tips of posterior tibiæ and base of their tarsi ♀, blackish; wings uniformly fuliginous, with a strong violaceous reflection. Length ♂ ♀ .56—.70 inch.

4. *scutellatus*.

Ichneumon scutellatus, Prov. Nat. Can. vii, p. 78, ♂.

Hab.—Canada. Black; face, clypeus, spot on scape beneath, annulus on flagellum, scutellum and tarsi white; segments one to three of abdomen, and femora except tips of posterior pair, ferruginous; wings hyaline; scutellum elevated into a transverse subacute edge. Length ♂ .45 inch.

Ichneumonides amblypygi.

Scutellum flat or convex.....**AMBLYTELES**.

Scutellum strongly elevated, subpyramidal.....**TROGUS**.

AMBLYTELES, Wesm.

The following table will readily distinguish the species.

FEMALES.

Metathorax without spines.

Abdomen black or blue.

Posterior legs black or blue, their tibiæ immaculate.

Apex of abdomen immaculate; scutellum black or blue.

Body black.....1. **exultus**.

Body dark steel-blue.....2. **montanus**.

Apex of abdomen marked with white; scutellum pale.....3. **tetricus**.

Posterior legs black, their tibiæ with white annulus... 5. **perinctuosus**.

Posterior legs black, their femora ferruginous..... 9. **mormonus**.

Posterior legs ferruginous, tips of tibiæ and tarsi black.

Abdomen fusiform.....10. **Ormenus**.

Abdomen narrow, slender.....11. **Belangeri**.

Abdomen black, with a broad yellow band at base of second and third segments..... 14. **bifasciatus**.

Abdomen black, segments 2 and 3 ferruginous, yellowish at base; apex of 4 and following segments narrowly yellowish.....15. **robustus**.

- Abdomen black and ferruginous.
 Apex of abdomen black.
 Scutellum black; posterior legs entirely black; abdominal segments two and three entirely ferruginous.....17. **rufizonatus**.
 Scutellum pale; posterior legs black, base of tibiæ ferruginous.
 Antennæ with short, thick-set joints; abdominal segments 2 and 3 entirely ferruginous, apical segments immaculate.....19. **Taos**.
 Antennæ with basal joints of flagellum elongate, cylindrical; abdominal segments two to four and apex of one, ferruginous, apical segments with pale spots.....21. **Nortoni**.
 Apex of abdomen ferruginous.
 Head and thorax black or blue.
 Posterior legs entirely black.
 Postpetiole aciculated; joint 3 of antennæ much longer than 4.
 Thorax deep black.....22. **detritus**.
 Thorax steel-blue.....23. **semicæruleus**.
 Postpetiole scabrous; third and fourth joints of antennæ equal in length.....24. **indistinctus**.
 Posterior legs more or less ferruginous.
 Wings fuliginous; scutellum flat, entirely black; antennæ without pale annulus.....25. **hudsonicus**.
 Wings hyaline; scutellum convex, with white spot; antennæ with pale annulus.....28. **coloradensis**.
 Head and thorax more or less ferruginous.
 Abdomen broad, fusiform.
 Antennæ with basal joints of flagellum (except first which is twice longer than broad), quadrate or moniliform; thorax beneath and metathorax generally black; abdomen generally entirely ferruginous except base of first and occasionally base of two or three following segments..... 29. **subrufus**.
 Antennæ with basal joints of flagellum (except first which is three times longer than broad), scarcely twice longer than broad; thorax generally ferruginous with black sutures; abdominal segments generally more or less black at base.....30. **suturalis**.
 Antennæ with basal joints of flagellum long, cylindrical, more than twice longer than broad.....31. **subfuscus**.
 Abdomen narrow, subcompressed at tip.
 Antennæ with pale annulus.....32. **anceps**.
 Antennæ without pale annulus..... 33. **hiuleus**.
 Metathorax with two prominent spines; thorax black and white; legs ferruginous; antennæ long, black with broad white annulus.
 Abdomen black, apical margin of segments white.....34. **? concinnus**.
 Abdomen ferruginous, with pale spot at sides of three basal segments.
 35. **? ornatus**.

MALES.

- Abdomen black or blue, immaculate above.
 Legs black or blue and white.
 Scutellum and entire body blue-black.....2. **montanus**.
 Scutellum pale.
 Face entirely black.....6. **expunctus**.

- Face more or less white.
 Abdomen black, the second segment not more coarsely sculptured at base.....7. **ultus**.
 Abdomen blue-black, the second segment coarsely and longitudinally rugose on basal middle.....8. **stadaconensis**.
- Legs honey-yellow.
 Face, posterior tibiæ and their tarsi black.....12. **illætabilis**.
 Face yellow; posterior coxæ, tips of their tibiæ and their tarsi more or less black.....13. **luctus**.
 Abdomen black, the two or three apical segments more or less marked with white.....4. **improvisus**.
 Abdomen black, apical margin of all the segments white...34. ? **concinuus**.
 Abdomen black, segments 2, 3 and sometimes base of 4 more or less ferruginous.
 Scutellum black; posterior legs entirely black; abdominal segments two and three entirely pale ferruginous.....16. **maguus**.
 Scutellum pale.
 Posterior legs honey-yellow, coxæ black; abdominal segments 2 and 3, sometimes only 3 at base, ferruginous18. **quebecensis**.
 Posterior legs black, coxæ, tibiæ and tarsi varied with white...20. **electus**.
 Abdomen ferruginous, basal segment only sometimes black.
 Scutellum black.....26. **fraternus**.
 Scutellum pale yellow or white.....27. **nubivagus**.

All the species of this subgenus, given below, were originally described as belonging to *Ichneumon* proper, except Nos. 3, 5 and 35.

1. **excultus**, Cress. Trans. Am. Ent. Soc. i, p. 293, ♀.

Hab.—Can., N. H., Mass., N. J. A deep black, shining, immaculate species, with apex of abdomen smooth and polished, the wings pale fuliginous, and the antennæ with broad white annulus. Length ♀ .55—.60 inch.

2. **montanus**, Cress. Proc. Ent. Soc. Phil. iii, p. 141, ♂ ♀.

Hab.—H. B. T., Can., Mass., Va., Col., Cal. A dark steel-blue, immaculate species, with dusky wings; the antennæ of ♀ have a broad white annulus, while in the ♂ they are entirely black. The blue color of the ♀ is much brighter than in the ♂ which is opaque. Length ♂ ♀ .50—.60 inch.

Out of eleven ♂ specimens, nine have the longitudinal ventral fold entire on segments two, three and four; the other two specimens have it only on two and three.

3. **tetricus**, Prov. Nat. Can. ix, p. 10, ♀.

Hab.—Canada. A robust deep black species, with annulus on antennæ, scutellum and apex of two or three apical segments, white; wings fuscous. Length ♀ .55—.62 inch.

4. *improvisus*, Cress. Trans. Am. Ent. Soc. i, p. 296, ♂.

Hab.—Can., N. J. A dull black species, with white annulus on antennæ, and the two or three apical segments of abdomen marked with white; the face except median black stripe, scutellum, most of four anterior tibiæ and tarsi and base of posterior tibiæ, are also white; wings dusky; the second and third ventral segments have generally a distinct longitudinal fold, which sometimes extends on half of fourth segment. Length ♂ .60—.65 inch.

This is probably the ♂ of *tetricus*.

5. *perluctuosus*, Prov. Nat. Can. ix, p. 10, ♀ (not ♂).

Hab.—Can., N. H., Van. An elongate, rather narrow, deep black species, with slender antennæ, subhyaline wings, and lateral margin of face, broad annulus on antennæ, line before tegulæ, short one beneath, scutellum and annulus on all the tibiæ, white. Length ♀ .55—.60 inch.

6. *expunctus*, Cress. Trans. Am. Ent. Soc. i, p. 290.

obliteratus, Cress. (nec Wesm.) Proc. Ent. Soc. Phil. iii, p. 147, ♂.

Hab.—Colorado. This is a deep black species, with dot on tegulæ, a short line in front, another beneath, scutellum, line on whole length of four anterior tibiæ and short line at base of posterior tibiæ, white; wings dusky at tips; head and antennæ entirely black; an imperfectly formed longitudinal fold on second ventral segment. Length ♂ .55 inch.

7. *ultus*, Cress. Trans. Am. Ent. Soc. i, p. 295, ♂.

var. *rogalis*, Cress. id. p. 295, ♂.

Hab.—Can., N. Y., Ct., W. Va. A dull black species, with face and clypeus more or less, scape beneath, tegulæ, short line in front, another beneath, scutellum, spot behind, all the coxæ more or less, stripe on four anterior femora within, knees, their tibiæ and tarsi and posterior tibiæ except tips, white; wings hyaline; sometimes the posterior tarsi are more or less white and one specimen has the posterior tibiæ entirely black except a short white line near base; ventral segments flat, smooth and polished, in one specimen only the second and third segments have each a longitudinal fold. Length ♂ .60—.70 inch.

8. *stadaconensis*, Prov. Nat. Can. vii, p. 50, ♂.

Hab.—Can., N. H., Mass. This differs from *ultus* principally by the abdomen being strongly tinged with blue, the second and third segments of which are coarsely and longitudinally sculptured at base;

the posterior coxæ are entirely black; the second and third ventral segments have each a longitudinal fold. Length ♂ .55—.60 inch.

9. *mormonus*, Cress. Proc. Cal. Acad. 1877, ♀.

Hab.—Utah. A robust, dull black, immaculate species, with slender entirely black antennæ; wings fuliginous; four anterior legs, except coxæ and trochanters, and posterior femora ferruginous; the posterior tibiæ are thickened at tips and their tarsi short and robust. Length ♀ .46 inch.

10. *Ormenus*, Cress. Proc. Ent. Soc. Phil. iii, p. 141, ♀.

Hab.—Can., Mass., Pa., Col. A deep black immaculate species with ferruginous legs and subhyaline wings; the antennæ are entirely black; apex of abdomen smooth and polished; the coxæ, often the trochanters, tips of posterior tibiæ and their tarsi entirely, are black; abdomen fusiform. Length ♀ .55 inch.

11. *Belangeri*, n. sp.

♀.—Long and slender, deep black, immaculate, apex of abdomen smooth and polished; legs, except coxæ, tips of posterior tibiæ, and their tarsi entirely, black; antennæ slender, with joints nine to fifteen pale *beneath*; wings yellowish-hyaline; abdomen very narrow, acuminate and subcompressed at tip. Length .56 inch.

Hab.—Canada. (Bélanger). This is colored exactly like *Ormenus*, but the abdomen is not more than half the width and the antennæ are more slender. It probably belongs to Wesmael's subgenus *Limerodes*.

12. *illætabilis*, n. sp.

♂.—Black, shining; spot beneath tegulæ, scutellum and spot behind whitish; wings faintly dusky; legs ferruginous; posterior knees, their tibiæ and tarsi, black; postpetiole and second segment coarsely rugose, apical segments shining and subcompressed; ventral segments without longitudinal fold. Length .55 inch.

Hab.—Georgia. (Morrison).

13. *luctus*, Cress. Proc. Ent. Soc. Phil. iv, p. 250.

tenebrosus, Cress. (nec Wesm.) Proc. Ent. Soc. Phil. iii, p. 145, ♂.

mellipes, Cress. Trans. Am. Ent. Soc. i, p. 295, ♂.

Hab.—Can., N. H., Col. A black species with honey-yellow or pale ferruginous legs, except coxæ which are black; face, scape beneath and scutellum, yellow; wings yellow-hyaline; second and third ventral segments generally honey-yellow. Length ♂ .55—.65 inch.

14. *bifasciatus*, Prov. Nat. Can. vii, p. 75, ♀.

Hab.—Canada. A shining black species, with annulus on antennæ, scutellum, basal half of tibiæ, broad band at base of second and third

abdominal segments, and spot on two apical segments yellowish-white; wings subhyaline. Length ♀ .50 inch.

15. **robustus**, Cress. Trans. Am. Ent. Soc. i, p. 298, ♀.

Hab.—Canada. A rather large, robust black species, easily recognized by the second and third segments of abdomen being ferruginous, yellowish at base; sides of face, annulus on antennæ, scutellum, most of tibiæ and narrow apical margins of fourth and following segments of abdomen dull yellowish; antennæ slender; wings yellowish-hyaline. Length ♀ .63 inch.

16. **magnus**, Cress. Proc. Ent. Soc. Phil. iii, p. 258, ♂.

Hab.—Colorado. This is a large black species, with second and third abdominal segments entirely pale ferruginous; wings fuscous; ventral segments destitute of longitudinal fold. Length ♂ .90 inch.

17. **rufizonatus**, Cress. Proc. Ent. Soc. Phil. iii, p. 183, ♀.

marianapolitanensis, Prov. Nat. Can. vii, p. 81, ♀.

Hab.—Can., N. J. This is a deep black species with second and third segments of abdomen entirely ferruginous; the antennæ have each a narrow pale annulus; wings subhyaline. Length ♀ .57 inch.

18. **quebecensis**, Prov. Nat. Can. vii, p. 77, ♂.

Hab.—Can., Col. A black species, with legs, except coxæ, and second and third abdominal segments more or less ferruginous; face and scutellum yellow; wings subhyaline; the specimen from Colorado has the abdomen entirely black except a ferruginous band at base of third segment; the second and third ventral segments are yellowish and have each a more or less distinct longitudinal fold. Length ♂ .60 inch.

19. **Taos**, n. sp.

♀.—Shining black; upper anterior orbits, spot on middle of face, mandibles, tegulæ, abdominal segments two and three, ferruginous; face short; antennæ subrobust, with short thick-set joints, seven to fourteen pale yellowish; scutellum flat, pale yellowish; wings pale fuscous-hyaline; legs robust, four anterior knees, tibiæ and tarsi, posterior tibiæ except tips and their tarsi, pale ferruginous; abdomen finely punctured, apical segments smooth and polished, post-petiole rather broad, smooth, gastrocoeli obsolete. Length .47 inch.

Hab.—New Mexico.

20. **electus**, Cress. Trans. Am. Ent. Soc. i, p. 304, ♂.

nitidus, Prov. Nat. Can. vii, p. 79, ♂.

Hab.—Can., Ct. This is black, with second, third and base of fourth abdominal segments ferruginous; face, scape beneath, tegulæ,

line before, one beneath, scutellum, spot behind, spot on disc of metathorax, spot on all the coxæ, four anterior legs mostly, posterior tibiæ except tips, and sometimes their tarsi entirely, whitish; wings clear; the second and sometimes the third ventral segments have a longitudinal fold. Length ♂ .60 inch.

21. **Nortoni**, Cress. Trans. Am. Ent. Soc. i, p. 304, ♀.

Hab.—Connecticut. A rather slender black species, with abdominal segments two to four entirely, and apex of one, ferruginous; dot on each side of ocelli, annulus on antennæ, scutellum and two spots at tip of abdomen, yellowish-white; wings hyaline; antennæ and legs slender; head broader than usual. Length ♀ .45 inch.

22. **detritus**, Brullé. Hym. p. 302.

Syphax, Cress. Proc. Ent. Soc. Phil. iii, p. 181, ♀.

Hab.—Can., Me., Mass., N. Y., Pa., N. J., Del. This is a black species, with the abdomen, except first segment, ferruginous; the antennæ are slender, with a broad white annulus on each, the third joint is longer than the fourth; the wings vary from subhyaline to dark fuliginous; the scutellum has occasionally a white spot; postpetiole finely aciculated. Length ♀ .50—.60 inch.

23. **semicæruleus**, Cress. Trans. Am. Ent. Soc. i, p. 302, ♀.

Hab.—Can., N. H., W. Va. Distinguished at once from *detritus* by the beautiful steel-blue head and thorax and clear wings; the scutellum is more or less white. Length ♀ .50 inch.

24. **indistinctus**, Prov. Nat. Can. vii, p. 75, ♀.

Hab.—Can., N. H., Mass., Ga. This is colored exactly like *detritus*, but is easily separated by the scabrous postpetiole, and by the third and fourth joints of antennæ being equal in length; the scutellum has frequently a pale spot. Length ♀ .50—.55 inch.

25. **hudsonicus**, n. sp.

♀.—Black; anterior orbits, broad on face, mandibles, scape beneath, tegulæ, legs except coxæ and base of trochanters, and abdomen except first segment, ferruginous; wings fuliginous; third joint of antennæ longer than fourth; postpetiole finely aciculated; gastrocoeli small, foveiform. Length .52 inch.

Hab.—Hudsons Bay Territory.

26. **fraternus**, n. sp.

♂.—Black; face, elypeus, scape beneath, four anterior legs except coxæ, trochanters and their femora behind, posterior tibiæ except tips, and their tarsi, yellow; wings yellowish-hyaline; abdomen except first segment ferruginous. Length .70 inch.

Hab.—Mass., Va. Very much like *nubivagus*, but at once separated by the black scutellum.

27. *nubivagus*, Cress.

cousimilis, Cress. (nec *Wesm.*) Proc. Ent. Soc. Phil. iii, p. 163, ♂.

var. *juxta*, Cress. Proc. Ent. Soc. Phil. iii, p. 163, ♂.

æqualis, Prov. Nat. Can. vii, p. 76, ♂.

Hab.—Can., Me., Mass., Pa., Va., Col. Black, with abdomen except first segment, ferruginous; face, scape beneath, tegulæ and scutellum pale yellowish; four anterior legs, posterior tibiæ except tips, and their tarsi yellowish; the var. *juxta* has the first segment of abdomen entirely ferruginous. Length ♂ .60—.70 inch.

28. *coloradensis*, n. sp.

♀.—Small, black; narrow anterior orbits, short line behind summit of eyes, interrupted annulus on antennæ, line before tegulæ, short line beneath, and spot at apex of abdomen, white; wings hyaline; legs ferruginous, coxæ, trochanters, base of four anterior femora, tips of posterior tibiæ and their tarsi, black; abdomen ferruginous, finely punctured, shining, postpetiole with a distinct medial fovea, gastrocoeli small, foveiform. Length .32 inch.

Hab.—Colorado.

29. *subrufus*, Cress. Proc. Ent. Soc. Phil. iii, p. 168, ♀.

Hab.—Can., Me., Mass., N. Y., Va., Ill. A robust, pale ferruginous species, with pleura and metathorax more or less black; scutellum pale yellowish; antennæ short, stout, with short thick-set joints, apex black middle joints more or less pale; wings pale fusco-hyaline; postpetiole finely aciculated, gastrocoeli small, foveiform. Length ♀ .50—.55 inch.

30. *suturalis*, Say, Bost. Jour. Nat. Hist. i, p. 226.

propinquus, Cress. Proc. Ent. Soc. Phil. iii, p. 172, ♀.

Hab.—Can., Mass., N. Y., N. J., Pa., Del., Va., Ill., Col., N. M., Utah, Dac. A robust ferruginous species, with thoracic sutures and basal margins of abdominal segments more or less black; wings pale fusco-hyaline; antennæ ferruginous at base, black at tips and more or less yellowish in middle. Length ♀ .45—.55 inch.

Quite a common species. The last ventral segment varies much in length, sometimes appearing small and at other times quite large.

31. *subfuscus*, Cress. Proc. Ent. Soc. Phil. iii, p. 173, ♀.

Hab.—Col., Nev., Cal. Very closely allied to *suturalis*, but easily distinguished by the long slender antennæ, with basal joints of flagellum long and cylindrical; the black bands on base of abdominal segments are sometimes subobsolete. Length ♀ .50 inch.

32. *anceps*, Cress. Trans. Am. Ent. Soc. i, p. 309, ♂ ♀.

Hab.—Ct., Del. A long slender, shining, pale ferruginous species, with yellowish hyaline wings, and yellow scutellum; flagellum fuscous

with broad yellowish annulus; sutures of thorax, tips of posterior femora and of their tibiæ, and sometimes the base and tip of apical segments of abdomen, black; abdomen narrow, polished, subcompressed at tip. Length ♀ .55 inch.

This and the next species seem to belong to Wesmael's subgenus *Limerodes*.

33. *hiulcus*, Cress. Proc. Cal. Acad. 1877, ♀.

Hab.—British Columbia. Same form and appearance as *anceps*, but the flagellum is without a pale annulus, being ferruginous with blackish tip. Length ♀ .48 inch.

34. ? *concinus*, Say, Contrib. Macl. Lyc. i, p. 68 ♂ (not ♀).

Hab.—N. C., Ill. A slender black species with very large buccate head, long antennæ and bispinose metathorax; the head, thorax and abdomen are marked with white; wings clear; legs slender and honey-yellow; the antennæ which are thickened at tips, have each a broad whitish annulus beyond the middle; scutellum raised, but not gibbose, sides strongly carinate. Length ♂ ♀ .42 inch.

This species and the next (*ornatus*) will probably form a new genus, being intermediate between *Hoplismenus* and *Amblyteles*. The specimens before me agree precisely with Say's description of *I. concinns*, except that of his ♀, which is evidently a *Cryptus*, the ovipositor being nearly half the length of the abdomen.

35. ? *ornatus*.

Hoplismenus ornatus, Cress. Trans. Am. Ent. Soc. ii, p. 92, ♀.

Hab.—New York. Head and thorax black, elaborately ornamented with white; scape, legs and abdomen ferruginous; antennæ long, slender, flagellum black with a broad white annulus; metathorax with two sharp spines; wings clear. Length ♀ .35 inch.

This is not an *Hoplismenus* as defined by Wesmael, the scutellum being flat, and the last ventral segment is not retracted.

TROGUS, Grav.

♀.—Abdomen flattened above, the segments strongly constricted at base; head narrowed beneath, cheeks flat.

Body entirely black; tibiæ and tarsi yellow.....1. **fulvipes**.

Body black and ferruginous, fulvous or yellow.

Thorax more or less black.

Wings dark fuliginous; abdominal segments two to five with discal black spot.....2. **Edwardsii**.

Wings and abdomen yellow.....4. **flavipennis**.

Thorax entirely ferruginous; abdomen ferruginous, black at tip; wings yellow, with two broad black bands.....3. **fascipennis**.

Body entirely fulvo-ferruginous; wings dark fuliginous.....5. **exesorius**.

♀♀.—*Abdomen convex or subconvex, the segments not unusually constricted at base; head more or less buccate.*

Body and wings blue-black, immaculate; antennæ black...6. **atrocæruleus**.
Body black, immaculate.

Wings uniformly dark fuliginous; antennæ orange-yellow.

Postpetiole elevated and subpyramidal before apex.....8. **Brullei**.

Postpetiole not elevated, bicarinate before apex.....7. **obsidianator**.

Wings yellow, smoky on apical margins; antennæ black; postpetiole not elevated before apex9. **marginipennis**.

Body black, more or less marked with fulvous or ferruginous.

Abdomen entirely black; head, pro- and mesothorax, and sometimes scutellum and disk of metathorax fulvo-ferruginous...12. **austrinus**.

Abdomen black, second segment with broad ferruginous band...10. **atrox**.

Abdomen black, apical half fulvo-ferruginous.....11. **apicalis**.

Abdomen black, basal segments more or less fulvo-ferruginous.

Wings fuliginous.

Thorax black beneath.....14. **occidentalis**.

Thorax entirely fulvo-ferruginous.....13. **nubilipennis**.

Wings yellow, apical margins fuliginous.

Antennæ yellow, black at tips.....15. **quebecensis**.

Antennæ black, scape yellow beneath16. **Bolteri**.

Abdomen entirely ferruginous, except base of first segment.

Posterior legs entirely black.....17. **Copei**.

Posterior tibiæ and tarsi fulvo-ferruginous.....18. **canadensis**.

Body entirely fulvous or ferruginous.

Wings dark fuscous.

Postpetiole elevated and subpyramidal before apex.....19. **Rileyi**.

Postpetiole not elevated, rather depressed.....21. **buccatus**.

Wings yellow, apical margins smoky20. **mellosus**.

Wings yellow, a large spot at tip and triangular mark at apex of externo-medial cell, violaceous-black22. **elegans**.

§

1. **fulvipes**, Cress. Trans. Am. Ent. Soc. ii, p. 93, ♂.

obsidianator, Prov. (not Brullé) Nat. Can. vi, p. 335, ♂.

Hab.—Me., N. H. Black; labrum, knees, tibiæ and tarsi yellow; wings fuliginous, with an æneous reflection; the ♂ has the anterior legs except coxæ entirely yellow. Length ♂ ♀ .60—.65 inch.

2. **Edwardsii**, Cress. Proc. Cal. Acad. Nat. Sci. 1877.

Hab.—Vancouver's Island. Black; face, antennæ beneath, tegulæ, scutellum and abdomen, except black spot on disc of segments two to five, fulvo-ferruginous; legs yellow, coxæ black; wings fuliginous, with an æneous reflection. Length ♂ .72 inch.

3. **fascipennis**, n. sp.

♀.—Ferruginous; antennæ, posterior legs, except coxæ and base of their tibiæ, and two apical segments of abdomen, black; face, clypeus, scape beneath, and basal third of posterior tibiæ, yellowish; wings bright yellow, a broad band a little before the middle and a broader one at tip, blackish;

abdomen depressed, postpetiole and three following segments above coarsely, longitudinally aciculated. Length .70 inch.

Hab.—Texas. (F. H. Strecker). Easily distinguished by the beautifully ornamented wings.

4. *flavipennis*, Cress. Proc. Ent. Soc. Phil. iii, p. 287.

Hab.—Colorado. Head, antennæ except tips, tegulæ, scutellum, anterior femora, and all the tibiæ and tarsi, fulvo-ferruginous; tips of antennæ, thorax, coxæ, posterior femora and first abdominal segment except tip, black; wings yellow, apical margins smoky; abdomen yellow, postpetiole and second segment fulvous. Length ♂ .70 inch.

5. *exesorius*, Brullé, Hym. p. 298.

Hab.—Can., N. Y., Pa., Del., Ga., Ill. Entirely fulvo-ferruginous, legs paler, tibiæ and tarsi golden-yellow; antennæ sometimes dusky or black above; wings uniformly fuliginous, with a strong æneous or violaceous reflection. Length ♂ ♀ .70—.80 inch.

This will probably prove to be the *Ichneumon pennator*, Fabr. Ent. Syst. ii, p. 155.

§ §

6. *atrocæruleus*, Cress. Trans. Am. Ent. Soc. ii, p. 92, ♀.

Hab.—Louisiana, (coll. Norton). Opaque blue-black, immaculate; wings blackish fuliginous, with a brilliant violaceous reflection; fourth and following segments of abdomen smooth and polished. Length ♀ .80 inch.

7. *obsidianator*, Brullé, Hym. p. 299.

Hab.—Pa., Ill., Ga., Tex. Deep black, immaculate; antennæ orange-yellow; wings uniformly blackish-fuliginous, with a strong æneous reflection; first abdominal segment bicarinate, the carinæ becoming obsolete before reaching the tip. Length ♂ ♀ .80—.90 inch.

8. *Brullei*, n. sp.

♂ ♀.—Differs from *obsidianator* principally by the first abdominal segment being strongly elevated and subpyramidal before apex; the anterior margin of clypeus is slightly produced in middle, while in *obsidianator* it is more or less concave, sometimes broadly emarginate; the abdominal segments are also more finely punctured. Length ♂ ♀ .85—1.10 inch.

Hab.—Ct., Pa., Ga.

9. *marginipennis*, Cress. Trans. Am. Ent. Soc. ii, p. 93, ♂.

Hab.—Dakota Territory. Black, immaculate; wings yellow, with apex broadly pale fuliginous; first abdominal segment not elevated before apex. Length ♂ .72 inch.

10. *atrox*, Cress. Trans. Am. Ent. Soc. ii, p. 93, ♀.

Hab.—Dakota Territory. Black, second abdominal segment with a broad transverse ferruginous spot; wings fuscous, stigma fulvous; first abdominal segment not elevated before apex. Length ♀ .62 inch.

11. *apicalis*, n. sp.

♀.—Deep black; a yellow spot on each side of face; third and following segments of abdomen fulvo-ferruginous; wings violaceous-black; four anterior tibiæ and tarsi obscure fulvous; anterior margin of clypeus straight; scutellum obtusely elevated; abdomen subconvex, postpetiole coarsely punctured, disc not elevated. Length .75 inch.

Hab.—Georgia. (Morrison).

12. *austrinus*, Cress. Trans. Am. Ent. Soc. ii, p. 92, ♂ ♀.

Hab.—Ga., Fla. Black; head, pro- and mesothorax, occasionally the scutellum and disc of metathorax, anterior legs and intermediate tibiæ and tarsi, fulvous; antennæ orange-yellow, sometimes dusky at tips; wings blackish-fuliginous, with a strong æneous reflection; first abdominal segment not elevated before apex. Length ♂ ♀ .85 inch.

13. *nubilipennis*, Hald. Proc. Acad. Nat. Sci. Phil. iii, p. 127.

Hab.—Can., Pa., Va., Ga. Fulvo-ferruginous, third and following abdominal segments black; ♀ antennæ black with broad yellowish annulus; ♂ antennæ black, slightly tinged with yellowish beneath toward tips; face and scape beneath of ♂, and the tibiæ except tips, and tarsi yellow; wings dark fuscous, with a strong æneous reflection, stigma fulvous; first abdominal segment elevated and subpyramidal before apex. Length ♂ ♀ .85 inch.

14. *occidentalis*, Cress. Trans. Am. Ent. Soc. ii, p. 93, ♂.

Hab.—Dakota Territory. Fulvous; stripe on each side of prothorax, stripe on anterior middle of mesothorax, most of pleura, base and flanks of metathorax, coxæ, base of third abdominal segment and the following segments except sides of fourth and narrow apical margin of fourth and fifth, all black; wings fuscous, the base irregularly and streak in marginal cell yellow, stigma and costal vein fulvous; first abdominal segment strongly elevated and subpyramidal before apex. Length ♂ .85 inch.

15. *quebecensis*, Prov. Nat. Can. vi, p. 335, ♀.

Hab.—Canada, (coll. Provancher). Large, pale fulvous; tips of antennæ, three broad stripes on mesothorax, sides of thorax and beneath, metathorax and fourth and following abdominal segments

except lateral margin of fourth, black; wings yellow, apical margins fuliginous; scutellum gibbous, convex; prominent disc of metathorax polished and fulvous; apex of posterior femora within blackish; first abdominal segment strongly elevated and subpyramidal before apex. Length 1 inch.

16. *Bolteri*, Cress. Trans. Am. Ent. ii, p. 94, ♂.

Hab.—Lake Superior, (coll. Bolter). Black; face, orbits, clypeus, mandibles and palpi lemon-yellow; tegulæ, spot before, and scutellum, fulvous; wings yellow, slightly dusky at tips; legs yellow, varied with fulvous, posterior coxæ at base and their femora behind black, extreme tips of their tibiæ within and basal joint of their tarsi dusky; first segment of abdomen except base, second entirely, third except base and ventral segments two to five, yellowish-fulvous; basal segment gibbous before apex. Length ♂ .85 inch.

17. *Copei*, Cress. Trans. Am. Ent. Soc. ii, p. 94, ♂.

Hab.—West Virginia. Black; white spot on each side of face; abdomen, except petiole, entirely fulvo-ferruginous; wings blackish-violaceous. Length ♂ .82 inch.

18. *canadensis*, Prov. Nat. Can. ix, p. 2.

Copei, Prov. (not Cress.), Nat. Can. vi, p. 335, ♂ ♀.

Hab.—Canada. Black; tibiæ, tarsi and abdomen except petiole, fulvous; wings uniformly dark fuliginous, with a strong æneous reflection; antennæ sometimes varied with fulvous; first abdominal segment elevated and subpyramidal before apex. Length ♂ ♀ .90—.95 inch.

Quite distinct from *Copei*.

19. *Rileyi*, Cress. Trans. Am. Ent. Soc. ii, p. 95, ♀.

Hab.—Illinois, (coll. Riley). Large, ferruginous; tips of mandibles and of antennæ, black; wings fuscous, with a golden gloss, stigma fulvous, nervures black; basal third of marginal cell, base of both wings and a costal streak on posterior pair yellow; legs and thorax beneath golden-sericeous; first segment of abdomen elevated and subpyramidal before apex. Length ♀ 1.08 inch.

20. *mellosus*, Cress. Rep. Wheeler Exp. p. 708, ♀.

Hab.—New Mexico. Large, fulvous; head, antennæ except tips, and tibiæ and tarsi yellow; tips of antennæ and narrow basal margin of third abdominal segment black; a fuscous stripe over tegulæ; wings yellow, apical margins fuliginous; scutellum elevated, convex; first abdominal segment elevated and subpyramidal before apex. Length ♀ 1 inch.

21. *buccatus*, Cress. Proc. Cal. Acad. Nat. Sci. 1877.

Hab.—Vancouver's Island. Rather small, robust, uniformly fulvo-ferruginous; antennæ black, fulvous at base; wings blackish-violaceous; head quadrate, cheeks swollen; postpetiole not elevated. Length ♀ .60 inch.

22. *elegans*, Cress. Trans. Am. Ent. Soc. ii, p. 94, ♀.

Hab.—Maine. Honey-yellow, with a fine golden sericeous pile especially on legs and abdomen; the face, tarsi and tip of abdomen paler; base and tips of antennæ tinged with fuscous; wings yellowish, with a brilliant golden gloss, a triangular mark at tip of externo-medial cell and a large irregular cloud at tip of anterior wing, black; stigma yellow; abdomen darker colored at base. Length ♀ .75 inch.

Ichneumonides platyuri.

Scutellum carinate laterally.....**PLATYLABUS.**

Scutellum not carinate laterally.....**EURYLABUS.**

PLATYLABUS, Wesm.

Body steel-blue.....**1. clarus.**

Body black and ferruginous.

Abdomen black, second segment only ferruginous.....**2. scutellatus.**

Abdomen entirely ferruginous or black at extreme base and apex.

Antennæ without pale annulus; head and thorax black.....**3. consors.**

Antennæ with pale annulus.

Metathorax black.

Basal joints of flagellum ferruginous; scutellum with white spot at tip.....**4. canadensis.**

Basal joints of flagellum black; scutellum white.....**5. montanus.**

Metathorax ferruginous.

Scutellum white.

Abdomen ferruginous, black at tip.....**6. signatus.**

Abdomen entirely ferruginous.....**7. ornatus.**

Scutellum ferruginous or black.

Abdomen ferruginous, black at tip.....**8. thoracicus.**

Abdomen entirely ferruginous.....**9. 4-carinatus.**

Body entirely ferruginous.

Antennæ without pale annulus.....**10. californicus.**

Antennæ with pale annulus.....**11. lincolatus.**

1. clarus.

Ichneumon clarus, Cress. Trans. Am. Ent. Soc. i, p. 297, ♀.

Hab.—N. H., Mass. A beautiful steel-blue species, with clear wings, white annulus on antennæ, and generally a white spot on scutellum; sometimes the thorax is tinged with green. The ♂ is less shining, narrower, with face, clypeus and four anterior coxæ beneath white; flagellum entirely black. Length ♂ ♀ .40—.55 inch.

2. *scutellatus*.

Ischnus scutellatus, Prov. Nat. Can. vii, p. 111, ♂.

Hab.—Canada, (coll. Provancher). This is black, with narrow line on sides of face, scutellum and spots on tip of abdomen, white; four anterior legs and base of femora varied with ferruginous; second abdominal segment dull ferruginous. Length ♂ .28 inch.

3. *consors*, Cress. Proc. Cal. Acad. Nat. Sci. 1877.

Hab.—California. Black, with sides of face white; femora and abdomen ferruginous; wings hyaline; flagellum entirely black. Length ♂ .33 inch.

4. *canadensis*, n. sp.

♀.—Black; most of legs and abdomen, except base and apex ferruginous; antennæ longer than body, very slender, four basal joints of flagellum ferruginous, joints nine to thirteen white; transverse spot above base of mandibles and one at tip of scutellum white; wings hyaline; coxæ, trochanters, tips of posterior femora and of their tibiæ, first segment of abdomen except tip, and the two or three apical segments, black. Length .35 inch,

Hab.—Canada.

5. *montanus*, n. sp.

♀.—Black; short line on anterior orbits, narrow annulus on antennæ, dot or line before tegulæ, one beneath, and large spot on scutellum, white; wings hyaline; femora and abdomen ferruginous, base of first segment and sometimes two apical segments black. Length .30—.32 inch.

Hab.—White Mts., N. H. (Morrison).

6. *signatus*.

Phygadeuon signatus, Prov. Nat. Can. vi, p. 282, ♀.

Hab.—Canada. Black; anterior orbits, interrupted on each side of antennæ, spot on each side of clypeus, annulus on antennæ, line before tegulæ, short one beneath, and scutellum, white; spot on sides of pleura, metathorax, legs and abdomen ferruginous; tips of posterior femora and of their tibiæ, and apex of abdomen black, apical margin of last two segments white; wings clear; antennæ much shorter than usual. Length ♀ .32 inch.

7. *ornatus*.

Phygadeuon ornatus, Prov. Nat. Can. vii, p. 181, ♀.

Hab.—Canada. Ferruginous; head, antennæ, prothorax and stains on mesothorax, black; antennæ long; orbits, broadest on face, spot on mandibles, narrow annulus beyond middle of flagellum, anterior margin of prothorax, spot on tegulæ, line before, short one beneath, scutellum and spot on anterior coxæ, white; wings clear. Length ♀ .32 inch.

8. *thoracicus*.

Hoplismenus thoracicus, Cress. Proc. Ent. Soc. Phil. iii, p. 288, ♂.

Phygadeuon impressus, Prov. Nat. Can. vi, p. 281, ♀.

var. *Ichneumon erythopygus*, Prov. Nat. Can. vii, p. 79, ♂.

Hab.—Can., N. H., N. Y., Pa. Ferruginous; head, antennæ, pro- and mesothorax, sometimes the scutellum and pleura, tips of posterior femora and of their tibiæ, and apex of abdomen, black; annulus on antennæ, sometimes line on each side of face ♂, and spots or lines on apex of abdomen, white; wings slightly dusky; the mesothorax is varied with ferruginous and the basal segment is broader and more rugose in *erythopygus*; the sculpturing of the basal segment of abdomen in a good series of specimens, however, varies considerably, as does also the coloration of the thorax. Length ♂ ♀ .30—.35 inch.

9. *4-carinatus*.

Phygadeuon 4-carinatus, Prov. Nat. Can. vii, p. 180, ♂.

Hab.—Canada. A small ferruginous species, with head, antennæ, prothorax, three marks on mesothorax, sutures of thorax and beneath, and trochanters, black; sides of face, two spots on clypeus and annulus on antennæ white; wings strongly iridescent; base of abdomen coarsely rugose, the postpetiole having four strongly elevated carinæ. Length ♂ .25 inch.

10. *californicus*, Cress. Proc. Cal. Acad. Nat. Sci. 1877.

Hab.—California. Ferruginous, shining, especially the abdomen; mesothorax sometimes stained with blackish; antennæ very slender, apical half black, wings hyaline. Length ♀ .35 inch.

11. *lineolatus*.

Ichneumon lineolatus, Prov. Nat. Can. vii, p. 82, ♀.

Phygadeuon rufipes, Prov. Nat. Can. vii, p. 181, ♀.

Hab.—Canada. Very much like the preceding, but distinguished at once by the white annulus beyond middle of flagellum. Length ♀ .35 inch.

EURYLABUS, Wesm.*agilis*, n. sp.

♀.—Black; dot on each side of vertex, annulus on flagellum, dot beneath tegulæ, scutellum and postscutellum, white; wings hyaline; four anterior tibiæ and tarsi more or less pale. Length .32 inch.

♂.—More slender; sides of face, two spots on clypeus, labrum, palpi, spot on scape beneath, spot on tegulæ and line before, white; extreme base of femora reddish; otherwise as in ♀. Length .35 inch.

Hab.—Can., Mass., N. Y.

Ichneumonones pneustici.

With the very limited amount of material before me belonging to this division, I have thought it best for the present to refer the species so far known to me to

PHLEOGENES, Wesm.*

Black species.....	1.
Black and ferruginous species, (the head and thorax being black).	
Abdomen black at apex.	
Antennæ with pale annulus.....	2—5.
Antennæ without pale annulus.....	6.
Abdomen ferruginous, first segment only black.....	7.
Abdomen entirely ferruginous.....	8.
Ferruginous species.	
Head and apex of abdomen black.....	9.
Head ferruginous.	
Abdomen black at apex.....	10—12.
Abdomen entirely ferruginous.	
Antennæ with pale annulus.....	13—14.
Antennæ without pale annulus.....	15—16.

1. ater, n. sp.

♀.—Deep black, shining; head large, transversely subquadrate, cheeks swollen, punctured; face short, transversely sculptured; clypeus short, broad, anterior margin broadly rounded; mandibles narrowed to tip which has two subequal teeth; antennæ short, with whitish annulus on flagellum; thorax finely, not closely punctured; scutellum large, flattened, broadly rounded behind; metathorax coarsely and confluent punctured, with well-defined elevated lines, posterior face oblique, longitudinally sulcate, transversely sculptured; wings narrow, hyaline, areolet five-angular; legs slender, four anterior knees, tibiæ and tarsi dull testaceous, coxæ simple; abdomen long, narrow, subfusiform, sparsely punctured, polished; postpetiole smooth, narrow; base of second segment longitudinally aciculated and with a broad rather shallow depression, deeper at sides. Length .40 inch.

Hab.—Missouri. (C. V. Riley).

2. hariolus.

Ichneumon hariolus, Cress. Trans. Am. Ent. Soc. i, p. 305, ♀.

Hab.—N. H., Mass. Black, shining; head not unusually large, cheeks swollen; broad anterior orbits, mandibles and sometimes the cheeks yellowish-ferruginous; clypeus transversely depressed before anterior margin which is broadly rounded; antennæ rather long and slender, brown at base, black at tips, a whitish annulus on flagellum; thorax finely and closely punctured; scutellum flattened, sparsely punctured; metathorax coarsely sculptured, with well-defined elevated lines, posterior face broadly excavated and transversely wrinkled; tegule whitish; wings subhyaline; legs ferruginous, subrobust, posterior

femora swollen, brownish, their coxæ beneath with a large sub-obtuse tooth at tip; abdomen subdepressed, fusiform, indistinctly punctured; second, third and fourth segments ferruginous, sometimes also apex of postpetiole; gastrocoeli very transverse, deep. Length ♀ .35 inch.

3. *hebrus*.

Ichneumon hebrus, Cress. Trans. Am. Ent. Soc. i, p. 305, ♂ ♀.

Phygadeuon insignis, Prov. Nat. Can. vii, p. 179.

Hab.—Can., N. Y., Ill. Same form as the preceding, but with larger head; black, with legs except tips of posterior femora and of their tibiæ, and the abdomen except three apical segments, ferruginous; flagellum with a broad whitish annulus, and three basal joints reddish; head and thorax closely and strongly punctured; wings faintly dusky; posterior coxæ with a short obtuse tooth beneath near tip; abdomen strongly punctured on second and third segments, postpetiole and apical segments smooth; gastrocoeli very transverse nearly meeting on disc; the ♂ is more slender, with longer antennæ, which are entirely black except white annulus on flagellum; the femora and posterior tibiæ are black. Length ♂ ♀ .36—.40 inch.

4. *Hebe*.

Ichneumon Hebe, Cress. Trans. Am. Ent. Soc. i, p. 306, ♀.

Hab.—Ct., N. Y., Ill. Much smaller than *hebrus* and more slender in form; black, shining; mandibles except tips, and base of flagellum yellowish; flagellum with a narrow whitish annulus; tegulæ whitish; legs except posterior knees and tips of their tarsi, and segments two to four of abdomen, yellowish-ferruginous; wings hyaline; legs sub-robust, posterior coxæ beneath with a large acute tooth at tip; gastrocoeli very transverse. Length ♀ .23—.25 inch.

5. *decoloratus*, n. sp.

♀.—Black; face, clypeus, posterior orbits, antennæ at base and beneath, disc of mesothorax, spot on scutellum, sides of thorax, legs, and segments one to four of abdomen, ferruginous; a white annulus on flagellum: antennæ long and slender; head broad, cheeks swollen; metathorax obliquely truncate behind; wings subhyaline; legs slender, simple, posterior femora and tips of their tibiæ blackish; abdomen narrow, subfusiform, shining, impunctured, base of second segment broadly transversely depressed. Length .30 inch.

Hab.—White Mts., N. H. (Morrison).

6. *discus*, n. sp.

♂.—Slender, shining, black; face, clypeus, mandibles, scape beneath, sometimes a spot beneath eyes, and on tip of scutellum, tegulæ, four anterior coxæ, and trochanters, yellow; flagellum beneath pale testaceous; legs and abdomi-

nal segments two to four, ferruginous; base of posterior coxæ and spot on disc of abdominal segments two to four above, blackish; wings subhyaline; legs slender, simple; abdomen narrow, second segment transversely depressed at base. Length .30 inch.

Hab.—White Mts., N. H. (Morrison).

7. *exiguus*.

Ichneumon exiguus, Cress. Proc. Ent. Soc. Phil. iii, p. 182, ♀.

Hab.—Colorado. Very robust, black, shining; scape, mandibles, legs and abdomen except first segment, ferruginous; head subrotund, face short, subprotuberant; antennæ short, robust, with submoniliform joints, scape large, swollen; thorax polished, impunctured; metathorax deeply excavated behind, with well-defined elevated lines; wings hyaline; legs short and robust, coxæ simple, femora swollen; abdomen broadly fusiform, polished, impunctured, postpetiole broad, petiole unusually robust, gastrocoeli obsolete. Length ♀ .23 inch.

8. *fungor*.

Ichneumon fungor, Norton, Trans. Am. Ent. Soc. i, p. 306, ♂.

Hab.—Ct., N. Y., Pa., Del., Ill. Long, slender, black; clypeus, antennæ, legs and abdomen, pale ferruginous; mandibles and tegulæ yellow; head large, transversely subquadrate, strongly punctured, clypeus nearly as long as broad; thorax strongly punctured; wings subhyaline; legs slender, simple, posterior tibiæ and tarsi dusky; abdomen long, slender, subcylindrical, shining, postpetiole narrow, gastrocoeli obsolete. Length ♂ .35—.40 inch.

9. *quadriceps*.

Ichneumon quadriceps, Cress. Trans. Am. Ent. Soc. i, p. 312, ♂ ♀.

Hab.—Can., Ct. This is a very long narrow species with quadrate head, and short, robust legs; ferruginous, with head, posterior femora and tibiæ and two terminal segments of abdomen, black; antennæ short; wings narrow, subhyaline; abdomen much longer than head and thorax, narrow and cylindrical, gastrocoeli obsolete. Length .40 inch.

10. *vincibilis*.

Ichneumon vincibilis, Cress. Trans. Am. Ent. Soc. i, p. 312, ♀.

Hab.—Illinois. Form of *Hebe*; entirely ferruginous except three apical segments of abdomen which are black, the antennæ are sometimes more or less black above and at tips with a whitish annulus on flagellum; head large and broad; wings hyaline; legs slender and simple; gastrocoeli very transverse. Length ♀ .27 inch.

11. *tuberculifrons*.

Phygadeuon tuberculifrons, Prov. Nat. Can. vi, p. 284, ♂ ♀.

Hab.—Can., Mass., N. Y. Entirely ferruginous except tips of antennæ and apex of abdomen, which are more or less black; head unusually large, deeply emarginate behind, cheeks swollen; antennæ with short, robust joints, the basal joints ferruginous, a whitish annulus at about the middle; wings narrow, clouded with fuscous, stigma conspicuous; legs rather slender, simple; abdomen fusiform, gastrocoeli obsolete. Length .25—.30 inch.

This probably belongs to *Centeterus*, Wesm.

12. *helvolus*.

Ichneumon helvolus, Cress. Trans. Am. Ent. Soc. i, p. 312, ♀.

Hab.—Ct., Pa., Ill. Much like *vincibilis*, but with narrower abdomen; entirely ferruginous except tips of antennæ and extreme apex of abdomen which are black; antennæ thickened towards tips, pale at base and with a pale annulus at about the middle; wings hyaline; legs subrobust, posterior coxæ with a short stout tooth beneath; abdomen narrow subfusiform, transversely depressed at base of second segment. Length ♀ .30 inch.

13. *lævigatus*.

Ichneumon lævigatus, Cress. Proc. Ent. Soc. Phil. iii, p. 176, ♀.

Hab.—Colorado. A robust, ferruginous species, the flagellum only being black with a broad whitish annulus; metathorax with sharply defined elevated lines and deeply excavated behind; wings hyaline; legs subrobust, posterior coxæ with a small acute black tooth beneath; abdomen fusiform, polished, gastrocoeli very transverse and deep. Length ♀ .33 inch.

14. *mellinus*.

Phygadeuon mellinus, Prov. Nat. Can. vii, p. 315, ♀.

Hab.—Can., Mass. Same form as *vincibilis*; shining ferruginous; flagellum black with broad white annulus; mandibles, palpi, tegulæ and trochanters white; sutures of thorax black; metathorax truncate behind, with well defined elevated lines; wings hyaline, iridescent; legs slender, with subrobust femora, posterior coxæ with small obtuse tooth beneath; abdomen fusiform, postpetiole broad, gastrocoeli very transverse and deep. Length ♀ .25—.28 inch.

15. *helvus*.

Ichneumon helvus, Cress. Trans. Am. Ent. Soc. i, p. 312, ♀.

Phygadeuon hilaris, Prov. Nat. Can. vi, p. 284, ♂.

Hab.—Can., Mass., Ct., Pa., Ill. Much the same form as *tuberculifrons*; ferruginous, shining; head large, subquadrate; mandibles large, broad, black, lower edge sinuate; antennæ short, with apex black; head and thorax closely and strongly punctured; wings subhyaline; legs slender, simple; abdomen fusiform, shining, impunctured, gastrocoeli obsolete. Length ♀ .30—.40 inch.

This probably belongs to *Colpognathus*, Wesm.

16. *pyriformis*.

Ischnus pyriformis, Prov. Nat. Can. vii, p. 109.

Hab.—Can., N. Y. Same form as *fungor*, but with smaller head; pale ferruginous; face, clypeus, mandibles, anterior orbits, scape beneath, line on collar, tegulæ, line before, and one beneath, scutellum, and four anterior coxæ and trochanters white or yellowish; large spot on vertex covering ocelli and extending to base of antennæ, tips of mandibles, antennæ above and sutures of thorax, black; inferior tooth of mandibles very short; wings hyaline; legs slender, simple; abdomen slender, cylindrical, shining, gastrocoeli obsolete. Length ♂ .35 inch.

Probably referable to *Herpestomus*, Wesm.

DESIDERATA.

Ichneumon nigratorius, Fabr. Syst. Piez. p. 55.—Scutello albo, thorace immaculato, corpore atro; orbita oculorum albicante. Magnitudo I. pisorii. Corpus totum atrum, nitidum antennarum fascia, oculorum orbita scutelloque albis. Habitat in America boreali.

Brullé, Hym. iv, p. 305, gives the following description of this species:

♀.—Il est noir, avec un anneau aux antennes et une tache sur l'écusson, jaunes. Les ailes sont transparentes, légèrement jaunâtres, avec les nervures, et le stigma surtout, d'un jaune roux. Le thorax est ponctué; l'écusson l'est peu ou point; le métathorax est fortement rugueux et comme ridé en travers, avec des lignes saillantes qui se croisent diversement; le trois premiers segments de l'abdomen sont couverts de points très-serrés et sont même finement striés au milieu; les autres segments sont à peine ponctués. Longueur; 0,018. Hab. la Caroline.

We have several species that answer tolerably well to the above descriptions, but all are too small—not over .60 inch. *I. pisorius*—an European species, with which *nigratorius* is compared for size, is very large, being from .80—1 inch in length.

Ichneumon Larix, Curtis, Ross, 2d Voy. Appendix, p. lxi, pl. A, fig. 1.—Antennæ curled; rufous, tips of antennæ, head, underside of the trunk, with the coxæ, and a spot and a broad stripe on the abdomen black. Clothed with very short brownish pubescence, pale castaneous, minutely punctured; antennæ and head black, the former filiform, the basal joint rufous, third and four following joints paler red; trunk black, the upper surface of the mesothorax and scutellum rufous and shining, metathorax dull and darker above, with a black fuscate stripe down the back; abdomen ovate, very thickly punctured, a black dot at the base of the second segment, the third with a broad black stripe down the middle, concave on each side, the remainder black with a rufous stripe on each side at the base of the fourth segment, petiole rather short, narrowed at the base; wings tinged with yellowish-fuscous, nervures and stigma ferruginous ochre, areolet quinquangular; legs rather stout, coxæ and trochanters black, the former with a red spot on the upper side in the hinder pair. Length 5 lines.

This Ichneumon infested the larvæ of the *Larix Rossii*, from which it was bred early in July, another was taken on the 8th of the same month, but they were not very numerous.

Hab.—Arctic America. Quite distinct from anything known to me.

Ichneumon vinctus, Say, Contrib. Macl. Lye. i, p. 70, ♂.—Body black; head above the antennæ and occiput, black; orbital line interrupted behind, and all beneath the antennæ except the incisure, white; antennæ, basal joints beneath, white; collar with a white line; thorax with a short line above the anterior wing and another below it, from the anterior extremity of these lines, a white line proceeds, and is interrupted before; two impressed dorsal lines obsolete behind; scutel and obsolete point behind it, white; wings, central cellule pentangular, transverse; metathorax with somewhat elevated rugæ, enclosing a pentangular space, from the angles of which abbreviated lines diverge, the two posterior of which terminate at the short tubercles; feet, anterior and intermediate pairs, pale whitish-yellow, the coxæ white with a black spot behind, the thighs with a black line and tibiae of the anterior pair also with a black line; posterior pair black, second, third and fourth joints of the tarsi, white; abdomen bright rufous, immaculate. Length .50 inch.

Hab.—Indiana. Closely allied in some respects to *duplicatus*, Say, page 180, No. 171.

Ichneumon ferrugator, Kirby, Faun. Bor-Am. iv, p. 258.—Black, rather glossy, very thickly punctured with minute and often confluent punctures. Head transverse, triangular, not quite so wide as the middle of the trunk; anterior margin of the face rounded; palpi reddish; eyes long, subelliptical; antennæ shorter than the trunk, spirally convoluted; trunk oblong, subcompressed; scutellum subtriangular, rounded at the apex; metathorax armed on each side with a short tooth, with several elevated longitudinal and oblique lines; legs with decumbent whitish hairs, anterior tibiae obscurely, and all the tarsi, rufous; wings embrowned with a rufous tint, nervures darker; abdomen lineari-lanceolate, rufo-ferruginous, with the first joint, which is dilated at the apex, black; footstalk channeled longitudinally on each side. Length 7 lines.

Hab.—Arctic America. Probably the same as *rufiventris*, Brullé, page 173, No. 137.

Ichneumon ferrugator, Fabr. Ent. Syst. ii, p. 154.—Ferrugineus antennis apice nigris. Medius, totus ferrugineus, mox immaculatus, mox pectoris lateribus nigris. Antennæ basi ferrugineæ, apice nigræ. Habitat ad Americæ littora.

Brullé, Hym. iv, p. 295, refers this species to *Joppa*, and describes it as follows:

♂ ♀.—Il est d'un roux ferrugineux, avec les antennes rousses à la base, puis brunes, puis rousses encore, et enfin brunes à l'extrémité; dans la femelle, il existe un large anneau jaunâtre avant l'extrémité. L'abdomen est brun sur les cotés et un peu sur le bord de quelques segments. Les ailes sont d'un brun fuligineux, et quelquefois un peu violacé, avec l'origine du stigma jaunâtre. Les cuisses postérieures sont quelquefois brunes. La surface du corps est fortement ponctuée; celle du métathorax est un peu rugueuse et surmontée de plusieurs lignes élevées, les unes longitudinales, les autres transversales: elle présente en outre, en arrière, une dépression plus ou moins marquée. Longuerer; 0,015. Hab. la Caroline; Philadelphie.

This may be the same as *Ichn. trogiformis*, Cress. p. 175, No. 149.

Ichneumon pectoralis, Say, Contrib. Macl. Lyc. i, p. 72.—Body black; orbits and all beneath the antennæ, yellow; antennæ blackish, joints thirteen to sixteen white; thorax with scutel and a white line before the wings, interrupted before; transverse line beneath it, yellow; wings hyaline, central cellule pentangular, transverse; pleura black; pectus black, with a large yellow spot between the intermediate and posterior feet; feet yellow, posterior thighs tinged with rufous, posterior tibiæ rufous at tip; abdomen rufous with black incisures. Length over .20 inch.

Hab.—Indiana. This seems near to *scitulus*, Cress., page 180, No. 175.

Ichneumon astutus, Holmgren, Eugénies Resa Omkring Jorden, Insecta, p. 394.—Rufus; capite thoraceque ex parte flavis; antennis supra thoracisque maculis nigricantibus; alis leviter infumatis; coxis anterioribus pallidis. Long. 8 mm.

Patria: California.

Caput obsolete punctatum, pone oculos vix angustatum, antice visum subrotundatum; facie transversa, remote at distinctius punctata, infra antennas paullo elevata. Clypeus depressiusculus, apice truncatus. Labrum nonnihil exsertum. Mandibulæ dentibus longitudine inæqualibus. Antennæ validiusculæ, dimidio corpore longiores, apicem versus sensim paullo angustatæ. Thorax nitidulus, capite angustior; mesothorace subremote et parum manifeste punctato, antice lineis 2 impressis; pleuris magis nitidis et remotius punctatis; metathorace subtiliter ruguloso, areis superioribus 5, quarum superomedia transversa, posteromedia nonnihil concava, tridivisa, spiraculis linearibus. Abdomen angustum; segmenti primi postpetiolo vix nisi valde obsolete punctato, utrinque depresso, lateribus subparallelis; 2:do latitudine longiore, basin versus sensim angustato, subtiliter et confertim punctato, gastrocoelis manifestis; 3:tio transverso; ultimo ventrali subacuminato.

Mas. Caput rufum, ore, clypeo et facie pallide flavis. Antennæ nigricantes subtus testaceæ vel ferrugineæ. Thorax rufus, suturis lateralibus et pectore flavo-stramineis; macula prothoracis maculisque utrinque juxta scutellum nigris. Abdomen rufum. Alæ infumato-hyalinæ, stigmatate fusco, radice et

squamulis testaceis. Pedes rufi, anteriorum coxis et trochanteribus stramineis, posteriorum tarsis leviter infuscatis.

This is somewhat allied to *scibilis*, Cress. page 183, No. 191.

Ichneumon pennator, Fabr. Ent. Syst. ii, p. 155.—Luteus antennis alisque atris. Magnus. Antennae porrectae, atrae. Caput flavum punctis tribus verticalibus, elevatis, globosis, nitidis. Corpus totum flavum abdominis segmentis valde incisus, distinctis. Alae atrae, immacolatae. Pedes flavi. Habitat in Georgia Americae.

This is probably the same as *Trogus exesorius*, Brullé, page 196, No. 5, the color of which, however, is fulvo-ferruginous.

Ichneumon bifasciatus, Say, Contrib. Macl. Lyc. i, p. 72.—Body ferruginous; antennae somewhat tinged with whitish beyond the middle and fuscous at tip; thorax circumscribing incisure black; wings dusky with a hyaline band hardly beyond the middle and an abbreviated one near the tip; stigma pale ferruginous; inferior wings dusky, semifasciate on the middle with hyaline; oviduct black; pectus incisures black; posterior tibiae blackish at tip. Length .40 inch.

Hab.—Indiana. This is probably a species of *Cryptus*.

Joppa maurator, Brullé, Hym. iv, p. 287.—*Nigra, abdomine et femoribus posterioribus 2 ferrugineis, antennarum annulo albo, alis fuscis.* Mas. Fem. Il est noir, avec l'orbite des yeux plus ou moins jaune en avant, un anneau jaunâtre aux antennes (en dessus seulement dans la femelle) et le devant des pattes antérieures d'un jaune roux; les cuisses postérieures et l'abdomen sont d'un roux ferrugineux; les ailes sont enfumées, avec un reflet brillant et comme métallique. Le thorax et les hanches de derrière sont granuleux ou chagrinés; le métathorax offre en outre plusieurs lignes saillantes et arquées; l'abdomen est chagriné, avec deux dépressions à la base du deuxième segment. Longuerer. 0,018. *Hab.* la Caroline; Philadelphie.

This is probably the same as *Ichn. insolens*, Cress., page 174, No. 141, which, however, is not a *Joppa*.

Ichneumon hilaris, Say, Contrib. Macl. Lyc. i, p. 71, is not an *Ichneumon*, and probably belongs to the Pimplariæ.

Ichneumon Blakei, Cress., Proc. Ent. Soc. Phil. iii, p. 139, is a *Cryptus*.

Ischnus contiguus, Cress. Proc. Ent. Soc. Phil. iii, p. 190; *iridescens*, Cress. id. p. 193, and *albitalarsis*, Cress. id. p. 194, also belong to *Cryptus*.

Ichneumon inquisitor and *pterebas*, Say, Contrib. Macl. Lyc. i, p. 71, belong to *Pimpla*.

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